FIMA Year Book 2014

FEDERATION OF ISLAMIC MEDICAL ASSOCIATIONS الاتحاد العالمي للجمعيات الطبية الإسلامية

ADDICTION:

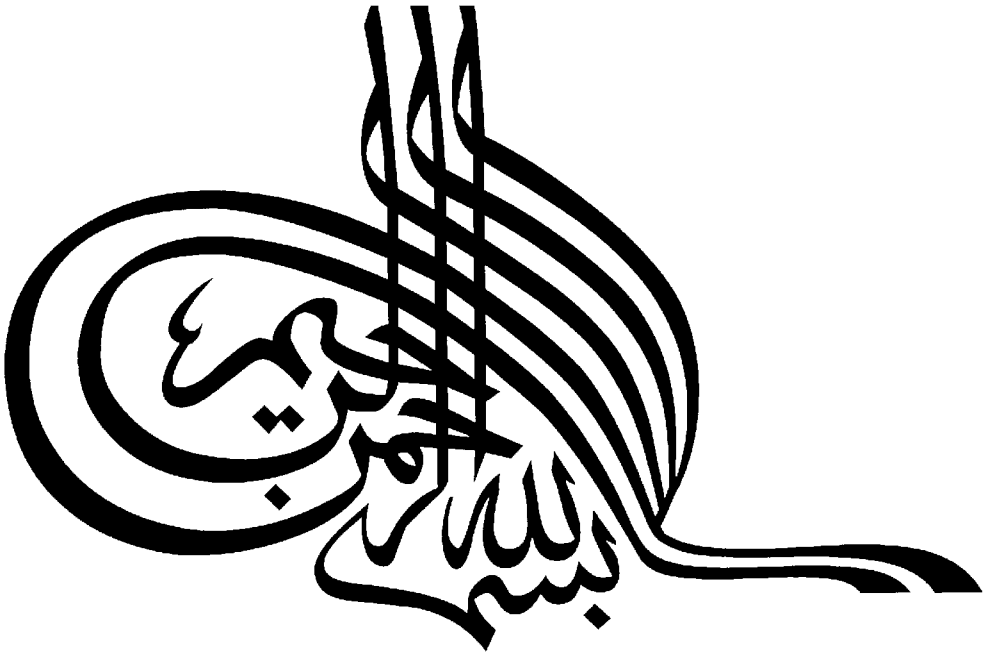
Medical, Psychosocial and Islamic Perspectives

الإدمان

الأبعاد الطبية والاجتماعية والنفسية

و

الرؤية الإسلامية


بسم الله الرحمن الرحيم

"... وَيُحِلُّ لَهُمُ الطَّيِّبَاتِ وَيُحَرِّمُ عَلَيْهِمُ الْخَبَائِثَ ... "

سورة الأعراف: 157

"...He (Allah) allows them as lawful what is good (and pure) and prohibits them from what is bad (and impure)..."

The Glorious Qur'an: Al-A'raf:7:157

FIMA

Year Book 2014

Federation of Islamic Medical Associations

الاتحاد العالمي للجمعيات الطبية الإسلامية

ADDICTION:

MEDICAL, PSYCHOSOCIAL AND ISLAMIC PERSPECTIVES

الإدمان:

الأبعاد الطبية والاجتماعية والنفسية والرؤية الإسلامية

Publisher:

Jordan Society for Islamic Medical Sciences – Jordan Medical association, Amman-Jordan

جمعية العلوم الطبية الإسلامية- نقابة الأطباء الأردنية

With special permit from:

Federation of Islamic Medical Associations (FIMA)

October, 2014

FIMA
YEAR BOOK 2014

Publisher:

JORDAN SOCIETY FOR ISLAMIC MEDICAL SCIENCES, In collaboration with, and special permit from: FEDERATION OF ISLAMIC MEDICAL ASSOCIATIONS (FIMA).

ADDICTION: Medical, Psychosocial and Islamic Perspectives
الإدمان: الأبعاد الطبية والاجتماعية والنفسية والرؤية الإسلامية

First Edition: October, 2014

ISBN: 969-8695-10

المملكة الأردنية الهاشمية
رقم الإيداع لدى دائرة
المكتبة الوطنية
(2014/10/4934)

Jordan Society for Islamic Medical Sciences
FIMA Year Book 2014: ADDICTION: Medical, Psychosocial and Islamic Perspectives **/ Jordan Society for Islamic Medical Sciences – Amman: JSIMS, 2014.**
(180) P
Deposit No.:2014/10/4934
Descriptors: Addiction// Medical// Psychosocial

❖ **أعدت دائرة المكتبة الوطنية بيانات الفهرسة والتصنيف الأولية**

Printed in Amman-Jordan, Al-Dustour Printing.

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Dear FIMA members
Assalamu Alaykum
Bismillah al-Rahman al-Rahim

Praise be to Allah the Most Merciful, the Most Beneficent. May Allah (ﷻ) shower His blessings and peace on the Prophet and Messenger Muhammad (ﷺ).

I begin by thanking the FIMA Executive Committee for honoring me with the responsibility of being the Editor-in-Chief again for this year's yearbook. I thank Allah (ﷻ) for giving me this opportunity and enabling me to accomplish this task. I pray to Allah (ﷻ) to accept my effort in His way and to reward all who participated in this effort.
This year's yearbook is addressing the worldwide serious problem of addiction. Addiction is a chronic relapsing disease characterized by craving for a drug, compulsive drug use, inability to control intake, and a resultant state of withdrawal with specific features when the drug cannot be accessed. Another type of addiction has been recently described, i.e. behavioral addiction. It is the same condition except that the putative agent is not a drug but a certain behavior.

In the first chapter, Dr Yargic discusses biologic mechanisms underlying addiction. He argues that addiction is a brain disease that starts with drug use that triggers a series of biological cascades. The drugs affect four interrelated biologic systems; brain reward system, autonomic nervous system, prefrontal cortex (PFC), and the brain stress system. Drugs stimulate the mesolimbic dopaminergic system much more than natural stimuli and produce a reward or high. Repetitive stimulation causes sensitization that causes craving for the drug. Other neurotransmitters are also involved e.g. serotonin. Dr Yargic describes the brain stress system as an alarm circuit that is triggered by unpleasant stimuli. It is mediated by corticotrophin releasing factor resulting in release of glucocorticoids, norepinephrine and dynorphin. This system aims to neutralize the reward effects of drug use and to decrease dopamine release and restore normal function. This causes tolerance to the drug and dysphonic syndrome when the use stops because the changes in the stress system continue after avoiding the drug. Long term use of drugs leads to adaptation within the autonomic nervous system and target organs. This adaptation is disturbed when the drug is avoided and results in the physical manifestations of withdrawal. The prefrontal cortex is involved in both the limbic reward system and the regulation of the higher order executive functions. In addition PFC dysfunction is related to both compulsive drug use and the dysfunctional behaviors of the addict.

Alcohol is the most widely abused drug worldwide. Alcohol dependence (Alcohol Use Disorder) is more common than dependence on all other psychoactive drugs combined. This is primarily because of its easy availability in most world communities. Although "social drinking" is acceptable in most nations, no level of alcohol consumption is considered safe. Drs Al-Bar and Mishal describe the epidemiology of alcohol consumption. They report that the total cost of alcohol consumption and dependence to national USA economy was 185 billion USD in 1998. This excludes the intangible losses that are difficult to quantify, including; domestic violence, child abuse and loss of careers. The authors discuss in detail the medical harmful effects of alcohol. Globally, alcohol is reported to

be responsible for 3.2% of all deaths and 4% of disease burden. Excessive alcohol consumption and binge drinking are the third leading cause of preventable death in USA.
The cardiovascular effects have been the subject of several studies. Some observational studies conferred some "beneficial "effects of social drinking primarily cardioprotective effects (decrease in the risk of coronary heart disease). These studies were not replicated in randomized studies and were not endorsed by professional organizations such as the Royal College of Physicians (UK) or by the American Heart Association's Science advisory Council in its 2001 report. Any such possible benefit is outweighed by its harmful effects on almost all organ systems as detailed in the article.
Alcohol is a contributing factor in accidents, especially car accidents and in injuries resulting from the use of dangerous equipment. Up to 45% of injured patients reported consuming alcohol before their injuries and more than a third reported that their injury occurred within 30 minutes of their last drink. Suicide, homicide, serious assaults and rape are significantly increased in association with alcohol consumption.
The authors point out that the main difficulty in the control of alcohol use disorder is that policies are not directed towards limiting the availability of alcohol. They compare this with efforts to curtail the availability of other dependence inducing drugs. They cite the failure of the prohibition amendment passed in USA 1919-33 and of similar attempts in Russia. The attempt to only partially limit alcohol consumption, by penalizing driving under the influence of alcohol and the prohibition of sale or service of alcoholic drinks to youngsters has not been successful either. They compare these failed efforts to the successful Islamic approach. Islam aimed at and succeeded almost completely in eliminating alcohol consumption by a gradual approach of its prohibition, simultaneous nurturing of moral values, and inculcation of faith that led people to obey God's orders.

Dr Hawari discusses tobacco dependence. Smoking is probably as widespread as alcohol intake. Tobacco smoking is highly addictive. Nicotine acts on the nucleus accumbens causing release of dopamine similar to other recreational drugs. As other addictive drugs nicotine addiction is characterized by the persistence of drug seeking behavior, and the occurrence of withdrawal symptoms upon abrupt cessation. According to the Diagnostic and Statistical Manual of mental disorders it is ranked third after heroin and cocaine and higher than alcohol and cannabis in its ability to cause dependence. It has been documented that smoking is responsible for increased morbidity and mortality due to various diseases directly attributed to smoking and the effects of second hand smoking mostly affecting women and children.
It is estimated that more than 5 million persons die annually due to tobacco related diseases. Smoking is associated with increased incidence of cardiovascular diseases, peripheral vascular disease, cerebrovascular diseases, and of sudden death. Smoking also increases the risk of head and neck cancers, lung, urinary bladder, colon, liver, and breast cancers. This increased risk is caused by the presence of at least 69 chemicals in tobacco smoke that are carcinogenic. Smoking causes and affects many respiratory diseases, notably chronic obstructive pulmonary disease (COPD) .
Dr Hawari then discusses tobacco dependence treatments. Quitting smoking results in significant and rather quick beneficial effects on health. It reduces premature death by 90% for those who quit before the age of 30 and by 50% for those who quit before the age of 50. The World Health Organization (WHO) has recommended strategies to encourage smoking cessation. These include inclusion of smoking cessation advice in primary healthcare settings, establishing accessible and free quit-lines and ensuring the availability of low cost pharmacotherapy. These include nicotine replacement therapy as well as medications that help suppress the urge to smoke such as Buprion, and varenicline. WHO also developed "The Treaty Framework Convention on Tobacco Control" that

advocates various strategies to counteract marketing of cigarettes and smoking culture by the tobacco industry.

Dr Basheer Ahmed discusses opiate addiction. Globally between 24 and 25 million adults aged between 15 and 64 years used an illicit opiate in 2010, 12 million of whom were in the USA. Opiate addiction is the most serious form of drug addiction. In that year, 100 deaths occurred every day from opiate overdose in the USA.
A major component of opiate addiction is the abuse of prescription opiates. Prescriptions for opioid analgesics increased from 75.5 million in 1999 to 206.5 million in 2009. Oxycodone, oxycontin, fentanyl and codeine are commonly prescribed for moderate and severe pain, sometimes without proper justification.
There are three medications approved by the Federal Drug Administration (FDA) in the USA for long term treatment, the opioid agonist methadone, the opioid partial agonist buprenorphine, and the opioid antagonist naltrexone. Along with the medications psychosocial treatment significantly enhances successful results. Dr Ahmed states that the elucidation of the underlying cause(s) of the addictive behavior through psychosocial therapy enhances the motivation to stop drugs, teaches coping with stress, changes reinforcement contingencies, fosters management of pain effects and enhances social support and inter-personal functioning. Dr Ahmed laments the fact that contrary to Islamic teachings, Muslims are heavily involved in planting, harvesting, refinement, smuggling, and distribution of heroin(and Cannabis) to Western countries. Afghanistan is the world's top user of heroin per capita. Iran and Pakistan have a high percentage of heroin addicts.
Dr Ahmed emphasizes the responsibility of Muslim communities to support and help to rehabilitate the addicts- rather than stigmatizing them-and to encourage them to seek treatment. He emphasizes that for Muslim patients, psychotherapy should focus on spirituality, strong belief in God, asking for forgiveness, increasing the hope and giving strength to coping mechanisms. This spiritual guidance may affect the brain reward system so the addict recognizes new cues for pleasure redirecting it away from drugs to new religious experiences.

Another commonly used psychoactive drug is Cannabis which is discussed by Dr Takriti in another chapter. He reports that the United Nations considered cannabis the most used illicit drug worldwide.
Cannabis is produced from dried leaves, flower, stems and seeds of the weed Cannabis Sativa. It contains 460 compounds, at least 80 of which are cannabinoids, the most active of which is tetrahydrocannabinoid (THC). Cannabis can be consumed as the dried herb, resin, or oil. Cannabis can be smoked in cigarettes alone or with tobacco. The resin and oil may be eaten directly or incorporated in foodstuffs. THC binds to cannabinoid receptors. These are two types; CB1 and CB 2 and both are G-protein coupled receptors. TCH via CB1 receptors indirectly increase dopamine release. It also acts as an allosteric modulator of the mu and delta opioid receptors. This results in relaxation, mild euphoria (the "high"), increased appetite, and impairment of short term memory, psychomotor coordination and concentration. Marijuana use has been implicated as a gateway to harder drugs. Dr Takriti presents the various evidence for and against this theory. It is clear that there is no evidence of a specific pharmacologic effect of cannabis priming the brain for cocaine or heroin. It may be that the presumed gateway effect is caused by the common factors involved in using drugs in the first place, and that cannabis users are more likely to be subjected to situations allowing them to get acquainted with individuals using or selling the various other illegal drugs.

Most countries have laws against the cultivation and possession or transport of cannabis. In the USA although Federal law still prohibits and penalizes marijuana use, some states have allowed its medicinal uses such as for treating nausea and vomiting associated with chemotherapy. Whilst some states (Colorado and Washington) have already legalized its recreational use. Other countries have lightened penalties for cannabis use, enforcing confiscation and fines rather than imprisonment.
Islamically, cannabis is considered an intoxicant, with significant harms on cognitive functions and psychosocial problems, and is prohibited. The author cites early jurists' opinions and a more recent fatwa by the Grand Mufti of Egypt. The rulings of alcohol apply similarly for cannabis.

Qat was categorized as a drug in 1973. It is primarily consumed in Yemen, and East African countries. According to Dr al-Goshae in his contribution to this yearbook, 70-80% of Yemenis chew qat on a daily basis. Qat plantation occupies 58.5% of the total cultivated land and consumes 60% of the scarcely available water. Two to three billion USD are spent yearly on qat consumption. Almost 20% of Yemen's workforce is involved in qat business. As it is locally produced and locally consumed, qat generates no national income.
The main active constituents in qat are cathinone and cathine. They are central nervous system stimulants that induce release of catecholamines. At first they cause alertness, talkativeness, and euphoria but later they cause depression. Excessive and prolonged qat chewing may cause psychosis and schizophrenia. It also affects the cardiovascular system causing hypertension, palpitation, cold extremities, and sweating. Qat also affects the gastro-intestinal system causing hyperacidity and aggravation of duodenal ulceration.
Dr al-Goshae then discusses whether qat produces dependence. While it is true that qat induces psychoactive effects that cause individuals to continue using it regularly despite its harmful effects on the family, income and health, but qat chewers do not experience significant withdrawal symptoms on abrupt cessation of its use. Some researchers believe that qat dependence is mainly psychological and chewers can quit the habit easily.
Because of the significant harmful socioeconomic effects the Yemeni government had sought to curtail its use. Qat chewing is banned in all government institutions and during work hours. Taxes were levied against various qat businesses. More recently, NGOs are trying to combat qat growing and consumption. To date, these efforts have been ineffective. Religious scholars in Yemen issued opinions declaring the prohibition of qat chewing. However there is no clear official fatwa (religious decree) in that regard In Yemen. In Saudi Arabia, the Fatwa Institution, and the International Islamic Fiqh Academy issued fatwas that qat is a narcotic and thus prohibited.

The other type of addiction i.e. behavioral addiction is discussed by Dr Dinc. It is difficult to draw the line between personal lifestyle and preferences on one hand and psychiatric pathology on the other. Dr Dinc cites the definition by Dr Griffiths as any behavior that fulfils six components, salience, mood modification, tolerance, withdrawal, conflict, and relapse. Gambling has been the best example of behavioral addiction, but at present there are many more examples such as internet, pornography, and shopping. Dr Dinc focuses on internet addiction because of its affordability, accessibility, anonymity, and that it can be used for all causes; sex, gambling, shopping, etc. He recommends paying special attention to children and youngsters to prevent them from developing behavioral addiction. Those who are at special risk are those who have any type of psychopathology and those who suffer from Attention Deficit Disorder. He recommends teaching them to use the internet responsibly and to encourage periodic physical exercise. He recommends

encouraging the youngsters to express themselves and to socialize and to participate in group activities to express themselves and have a meaning and fulfillment of their lives.
There is no specific treatment for behavioral addiction. However, psychosocial treatment methods like the 12 step approach and pharmacologic treatment such as naltrexone which is a part of opiate addiction treatment may be helpful.

Drs Harirah and Donia discuss substance abuse during pregnancy. It is estimated that about 4% of pregnant women use some type of illicit drugs e.g. cocaine or marijuana, and that many more smoke and drink alcohol. Smoking is relatively common especially in teenagers. Both nicotine and carbon monoxide readily cross the placenta. Their concentration in fetal blood is much higher than in the maternal blood. Smoking increases the risk of abortion, ectopic pregnancy, placental insufficiency, fetal growth restriction (FGR), low birth weight (LBW), and preterm delivery.
Marijuana is the most commonly used illicit drug during pregnancy in USA. THC crosses the placenta and has direct toxic effects on the fetus. FGR and preterm delivery are associated with marijuana use but there is no evidence of increased incidence of fetal malformations.
Alcohol is still commonly consumed by pregnant women despite all its hazards. According to the 2010 National survey, 18.8% do, and 38% report binge drinking during pregnancy. Alcohol freely crosses the placenta and its level in fetal blood is the same as in the maternal blood. The fetal liver cannot metabolize it as efficiently as the mother's liver. Alcohol consumption in pregnancy is associated with abortion, and fetal malformation specifically Fetal Alcohol Syndrome, characterized by FGR, decreased head circumference, abnormal facies, cardiac and renal abnormalities.
Heroin and methadone are the most common opiates used by the pregnant women with a recent increase in prescription opiate analgesics abuse.Pregnant women who are using heroin should be tested for sexually transmitted diseases (STDs). Intravenous heroin addicts have significantly increased risk of HBV, HCV, and HIV infections. They must be counseled about methadone maintenance treatment which is associated with much better outcome. Heroin readily crosses the placenta. Heroin addicts experience six-fold increase in the risk of maternal complications; FGR, preterm delivery, LBW, stillbirth, depressed Apgar scores, meconium staining of the amniotic fluid, and chorioamnionitis. The judicial use of analgesic opioids has not been associated with increased fetal malformations or other complications. However, if they are used around the time of delivery there will be increased risk of neonatal withdrawal. Neonatal Abstinence Syndrome is the most consistent outcome in neonates delivered of mothers addicted to opioids. The withdrawal symptoms include seizures, breathing complications, tremors, and difficulty in feeding.
Another addiction drug used in pregnancy is cocaine. In the USA, a 1995 survey found that the prevalence of cocaine abuse in pregnancy was 4.5%, 0.4%, and 0.7% of Afro-American, white, and Latino women respectively. Cocaine has dopaminergic effects leading to euphoria or "the high". Cocaine hasalso sympathomimetic effects causing vasoconstriction, hypertension, tachycardia, and possibly arrhythmias. Prenatal use of cocaine is associated with FGR, LBW, and decreased fetal head circumference. Use in the first trimester increases the risk of abortion and fetal malformation.Use later in pregnancy is associated with increased risk of placental abruption, preterm labor, premature rupture of membranes, and stillbirth. Cocaine abusing mothers are prone to infant neglect and abuse.
Methamphetamine is becoming a relatively common drug of abuse in young women and thus in pregnancy. As with virtually all other drugs of abuse, amphetamine use is associated with risky sexual behavior, teenage pregnancy, and potential increased risk of STDs. Prenatal exposure to

amphetamine leads to LBW and to neonatal complications such as decreased alertness and poor feeding.
Barbiturates and other sedatives such as benzodiazepine are sometimes prescribed to pregnant women. There is no definite evidence of teratogenic effects but their use in the last trimester may be associated with neonatal withdrawal symptoms and with the floppy infant syndrome.
Drs Harirah and Donia discuss the general principles of management of pregnant women abusing drugs. Preconception counseling vis a vis cessation of smoking, abstaining from alcohol is very important. Generally, other addicts do not present themselves to prenatal counseling or even for prenatal care, especially in the early part when most of the teratogenic events occur. Screening for fetal malformations should be adequately pursued. Genetic counseling should be offered if a malformation is diagnosed. Serial sonography should be provided for evaluation of fetal growth. Fetal well being testing should be offered in the third trimester. Nutritional counseling by trained nutritionists is to be recommended to mitigate the poor nutritional status of these women. Timing of delivery can be a challenge. The risks of prematurity should be balanced against that of stillbirth. Pain relief management during labor should be discussed in advance.

Dr Karaman relates the experience of the Turkish Green Crescent Society (TGCS) in combating the problem of addiction. He notes the power groups that promote addiction mainly the alcohol and tobacco industries, the "addiction industry". He describes the impact of addiction on global mortality figures as well as the disease burden. Dr Karaman reports that the annual value of the illicit drugs in the world is estimated at 320 billion USD which is beyond governments' control. He gives the history and the programs of TGCS. The society played a major role in the Turkish government adoption and implementation of the WHO 's Framework Convention on Tobacco Control. Although a "National Alcohol Control Action Plan" was introduced in Turkey in May 2013, there is significant opposition from the secularists and the alcohol industry. The Society continues to advocate for the law. TGCS aims to be a part of the international solidarity to fight addiction on a global level. The Society is a member of the European Alcohol Policy Alliance and holds a special consultative status with the Economic and Social Council of the United Nations. The Society serves as a model and helped to form similar societies in Palestine, Bosnia, Malaysia, and Thailand. Eventually they hope to establish the "World Federation of Green Societies"

After elucidating the problem, the next chapters of the yearbook address the different approaches to the treatment of addiction. Dr Hamdan discusses the psychological model of addiction therapy but stresses its possible hindrance by "Spiritual Bypassing". She defines it as a person's utilization of spiritual procedures and beliefs to avoid unresolved psychological issues that may be the trigger for the addiction. There is scarce research about "Spiritual Bypassing" and almost none from the Muslim perspective. Most Muslims believe that addiction is a great sin and the result of weak Iman, and that increasing one's faith and Islamic practices is the way to overcome it. This, however, does not solve the problem. It allows the person to avoid examining or taking responsibility for the issues underlying addiction. Dr Hamdan notes that devout Muslims believe that calamities and illnesses are a means to get closer to Allah so they should embrace their illness because it cleanses and purify them from their sins. So an addict should use the problem as an opportunity to reevaluate his or her life and to increase one's Islamic practices. Further, Muslims tend not to discuss problems such as addiction with family or friends depriving themselves from the beneficial effect of social support in the addiction recovery process. Instead they tend to seek help from an *Imam* rather than from a professional. The religious leaders usually have no formal

education or training in these types of issues and Muslims thus forgo proper treatment. Dr Hamdan believes that the *Imams* should serve as mentors referring these addicts to professional counselors/ mental health professionals rather than just prescribing engaging in more Islamic rituals and practices. This does not mean one should neglect spirituality. In fact many psychology experts recognize its essential role. Studies suggest that early childhood trauma such as abuse or neglect by parents often results in children engaging in addiction behavior later in life. Psychological help will probably unveil issues in the unconscious which are the root cause of the addiction behavior. Muslims in general shun psychological counseling because of cultural taboo. This needs to be corrected.

Psychotherapy and Islam combined will allow one to address the root cause of addiction and result in better chance of recovery. Muslim religious leaders and healthcare providers need to make concerted effort to debunk the negative stereotype of psychotherapy, counseling and mental health services. Dr Hamdan stresses the point that while the Quran and Sunnah provide the principles by which one lives his life, "professional counseling could be used to help the person understand why he or she may have difficulty applying these principles". " In that sense she believes that " Psychotherapy and counseling can serve to enhance a person's spiritual beliefs not taking away from or replacing religion".

In most Muslim majority countries the traditional treatment of drug addiction is based on abstinence. Another strategy i.e. "Harm Reduction" is discussed by Drs Hoosen and Mohamed. This strategy allows substitute drugs such as methadone for heroin addicts and provides syringes, needles and condoms for intravenous drug users as a means to treat the addiction while minimizing the health, social and economic harms to the addicts, their families and community at large. It tends to reduce legal problems, crime, domestic violence and job loss. The permissiveness of this approach is controversial, especially in Muslim countries. The authors opine that this approach is acceptable within Islamic guidelines.

Harm reduction is a mainstream drug policy in all European Union member countries. The authors cite Spain as an example of the change in drug policy to harm reduction with resultant increase in retention rates in treatment centers and a parallel decrease in morbidity and mortality of the addicts. The authors also cite a similar experience in some Muslim majority countries. In Iran, substance abuse was dealt with primarily by punitive measures. This was associated with high relapse rates and increased risky behavior. Political and religious leaders recognized that incarceration and abstinence were unsuccessful in addressing the continued increase in drug abuse and in rates of HIV infection. This led to a review of the government policies and subsequently the introduction of harm reduction strategies. In Malaysia the zero tolerance approach to drug use failed to curtail the problem. This gradually changed to harm reduction programs with the approval of the "Institute of Islamic Understanding" which declared that the harm reduction approach did not violate Shari'ah (Islamic jurisprudence). Similarly in Afghanistan harm reduction interventions were introduced in 2003.

Harm reduction strategies are generally challenged in Muslim countries based on the concept that intoxicants and extramarital sex are forbidden in Islam. Distribution of syringes, condoms and substitute drugs imply approval of the illicit behaviors. The authors, however, point out that the abstinence only approach has been unsuccessful in stemming the spread of HIV and the punitive approach was counterproductive. They propose citing contemporary Muslim scholars who believe that it is not sufficient for verdicts to be passed purely on the basis of classical legal texts but has to employ *Ijtihad* taking into consideration the objectives of *Shari'ah* which in essence are meant to

bring benefit and ward off harm. According to this school of thought, if harm reduction strategies which involve the use of *haram* (forbidden) substances, and haram practices are beneficial to the society as a whole, by preventing harm to the general public, then this strategy will be Islamically acceptable. The authors invoke some Qura'nic verses and prophetic *Ahadith* and *fiqh* principles that support their view. In "Harm Reduction strategies addicts may not achieve total abstinence and they may still indulge in drug use but they do that in a less risky manner thus minimizing the harms to themselves and others". They will be encouraged to enter into treatment facilities where they will be more likely to engage with health professionals and maybe "more receptive to Islamic psychotherapy which may motivate them towards total abstinence". The authors also point out the similarity of harm reduction strategy to the gradual way Islam adopted for alcohol prohibition. They also point out that addiction is an illness and addicts require treatment and not punishment. Furthermore, the authors remind us that Islam teaches us compassion towards the sick and that it is "not the duty of the health practitioner to pass moral judgment but only to care for the patient."

In another chapter Dr. Abu Dannoun discusses the Islamic perspectives of addiction prophylaxis and therapy. He points out that although the prohibition of *Khamr* was largely applied to alcohol, the major and may be the only known addictive substance known then, in fact the prohibition is clearly because of its intoxicating effect. On that basis the ruling of prohibition applies to any other intoxicating substance regardless of its chemical structure or other scientific means of characterization. In Islam *tahrim* (prohibition) is linked to faith and its manifestations such as prayers and fasting. This has more authority on the true Muslim than manmade laws. *Tahrim* of intoxicants is deeply rooted in the Muslim psyche that even with the current decline of the leadership of Islam in Muslim societies, addiction is a less of a problem than in non-Muslim countries. The individual Muslim avoids alcohol and other intoxicants because it is prohibited and because of his or her desire to please Allah. In addition, the society as a whole exerts pressure on its members to avoid addictive substances. It is ironic that in non-Muslim countries there are serious attempts to curtail the availability of other addictive substances while alcohol is largely accepted as a social drink despite the fact that the former have less deleterious effects than alcohol.

Dr Abu Dannoun brings up the question of whether addiction is an illness or a behavioral disorder. Other contributors to this yearbook consider it to be a brain disease but still is it a disease that one has no control on? Dr Ahmed, in his opiate article, states that while genetics and other biologic underlying factors are involved in addiction, it is very possible that one can control it. Contemporary Western oriented approaches are based on the concept that addiction is a disease that needs therapy. Significant concessions are practiced to drug addicts in the harm reduction approach as discussed previously. Dr Abu Dannoun does not approve of this approach while not neglecting the medical, psychosocial and rehabilitation needs of drug addicts. He does consider addiction a devious behavior and ethical-religious disobedience which are self afflicted by the individual. These considerations render them liable to punitive measures. He believes that recognized therapeutic measures should be mandatory. They may be gradual and long-term but should aim at complete abstinence. Clearly Dr Abu Dannoun's approach is orthodox in nature but I think that harm reduction approach merits consideration and should be subjected to Ijtihad by Muslim scholars alongside medical experts, psychotherapists, social workers, and others directly involved in the care of addicted individuals.

Drs Mohamed and Marican from Malaysia state in their article that there are different methods of addiction treatment and no single treatment is suitable for all. Treatment must be carefully adjusted to ensure that a specific plan meets the person's changing needs. Detoxification maybe the first sep but counseling and behavioral therapy should be applied to minimize the rate of relapse. Recovery can be a lifelong process with multiple treatments. In Malaysia, Compulsory Centers for Drug Users (CCDUs) were established to provide primarily psychosocial treatment. More recently the supply and demand reduction approach was applied and resulted in a decrease in the number of drug addicts. Supply reduction focuses on legislation, and law enforcement. Demand reduction is achieved through several methods including education, increasing public awareness of the dangers of addiction, and the establishment of effective abstinence based treatment programs. Because of the limited success of the supply and demand reduction approach the harm reduction approach was introduced in the first decade of this century. In 2005 MMT was endorsed by the government. Moreover, this approach includes religious teaching conducted by certified religious teachers. The harm reduction approach resulted in further reduction of substance abuse, greater concern for one's own health, decrease in illegal activities, longer retention in treatment centers and increase in gainful employment. There is evidence that by participation in these programs the recovering addicts become more practicing Muslims with less attraction to negative life influences. The authors note that the inclusion of religious teaching in drug treatment does have positive effect onto the lives of the clients, while religious input in isolation is of little value. This supports the importance of avoiding Spiritual Bypass described earlier by Dr Hamdan, and the Harm Reduction approach discussed by Drs Hoosen and Mohamed.
The religious input should not be a fixed program but needs to be tailored to each individual needs specifically to their prior religious knowledge.

Dr Shaharom describes a role for Islamic Psycho-Spiritual Therapy (IPST) in the treatment of addiction. He defines it as a healing technique that transfers the individual from the realm of ill health to that of well-being that is *Rabbani* (Godly). IPST incorporates the different theories of psychotherapy that are not inherently anti-religion, Islamizing them in the process. Dr Shaharom recommends using his designed Islamic Religiosity Scale to evaluate each individual and to design the best combination of modalities for his treatment and to follow his progress. The basic modalities are prayers, meditation, *zikr* (remembrance of Allah), and Qura'nic reading / recitation.
Dr Shaharom stresses that in some cases IPST needs to be coupled with pharmacotherapy. He cites beneficial results for IPST and concludes that it is relevant in the treatment of addiction.

I conclude by thanking all the authors for their contributions to the issue. I especially thank members of the Editorial Board: Drs. Aly Misha'l, Abul Fadl Mohsin Ibrahim, and Musa Mohd Nordin for their valuable input and guidance. I sincerely appreciate the work of Dr. Mishal's staff for copyediting and proofreading of the manuscripts, especially Ms. Elham Mohammad Swaid.

I pray that Allah (ﷻ) accept and bless our efforts in His service. May Allah (ﷻ) guide us to the right path and have mercy on us. Amin.

Wassalam

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Federation Of Islamic Medical Associations (FIMA) in Brief

- Established at the outset of the 15th Hijrah century, December 1981, in Orlando, Florida, USA, where senior leading medical professionals representing ten Islamic medical organizations, from various parts of the world, convened and laid down the foundation of the Federation.
- Subsequently, in March 1999, FIMA was incorporated in the State of Illinois as a non-profit organization, then acquired the special consultative status with the United Nations Economic and Social Council (UN-ECOSOC).
- Since that time, FIMA membership progressively expanded to include 29 full members, 13 associate members, and more than 15 prospective and collaborating organizations from all over the world.
- Most FIMA activities and achievements are based on the endeavors of its member Islamic Medical Associations (IMAs), in constructive mutual cooperation, and harmonious understanding.
- Islamic medical activities of FIMA have a holistic nature. Leadership, mutual cooperation and innovation are prerequisites for the welfare of our communities, our Ummah and humanity at large.
- These activities include, but are not limited to:

1. Cooperation in humanitarian medical relief work, where and when needed in disaster stricken countries, regardless of ethnicity, religion or race. The FIMA Save Vision Program was initiated in early 2005. To date more than 100,000 eye surgeries were performed by volunteer ophthalmologists and teams from IMAs in several countries, in Africa, South and Southeast Asia, where visual impairments are rampant. The program included training of local medical professionals to continue and widen this activity by qualified local talents. The program also included establishment of local eye hospitals or eye sections in existing general hospitals, in deprived communities.

   This activity qualified FIMA for a distinguished award from the American College of Physicians (ACP), designated for outstanding humanitarian medical achievements.

   Over the past five years, two new humanitarian activities were launched: The cleft lip/palate, and the vesico-vaginal fistula projects, both highlighted as significant medical and psychosocial problems in several needy communities.

2. Collaboration with regional and international organizations in areas of preventive medicine and community health education.
3. Scientific, professional and ethical jurisprudence related conferences, seminars and publications.
4. Establishment of the Consortium of Islamic Medical Colleges (CIMCO), to foster cooperation in improvement of curriculum, training, research, administration, and up-bringing of model medical practitioners.
5. Establishment of the Islamic Hospitals Consortium (IHC), to pursue cooperation and coordination among medical professionals and hospital administrators in areas of experience exchange, benchmarking, improvement of health care delivery, ethical, administrative and operational activities, to meet the most advanced international standards, in the context of Islamic principles.
6. Publication of FIMA Year Books, which address biomedical, ethical, scientific and other related issues that are needed for medical practitioners, educators as well as Jurists.
7. In 2013, FIMA committee on Bioethics embarked on the project of Encyclopedia of Medical and Health Ethics. In view of the extensive effort needed, this project is expected to span over several years.
8. Medical students' activities, including conferences, seminars, publications, camps, Umrah and Ziarah programs.
9. Collaboration to extend a helping hand to Muslim medical practitioners in underprivileged countries, to work together and organize professional medical societies, to serve their communities.
10. Establishment of resource centers. The HIV/AIDS Resource Center has been functional in prophylactic, social and therapeutic activities in several countries for the past two decades. The Biomedical Ethics Resource Center has been functional for the past decade.

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BIOLOGICAL MECHANISMS UNDERLYING ADDICTION

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Abstract:

Addiction is a behavioral disorder related to alterations in neurobiological systems involved in reward system, brain stress response, physical withdrawal, inhibition and executive control. Genetic and epigenetic variations in these neurobiological systems cause individual differences and responses to these substances. The current review summarizes the literature on the biological basis of drug addiction. In addition, this review tries to explain the path from occasional recreational substance use to the compulsive, addicted state. It will help to understand why the absolute avoidance of psychoactive drugs is very crucial.

Keywords: addiction, mechanism, abuse, dependence, neurobiology

Introduction:

Drug addiction is a chronic, relapsing disorder that is characterized by a craving for drugs, compulsive drug use, loss of control in limiting intake, and emergence of an aversive state (withdrawal) when the drug is not accessed[1]. Although any drug use has a potential for further abuse or dependence, clinical experience and animal studies show that neurobiological effects of occasional and limited use of a drug, like alcohol, is different from those of a chronic dependent state[2]. Addiction develops as a result of a transition from the first neurobiological state to the second. Drug intake, accompanied by a biological vulnerability causes some permanent functional and structural changes[3] in various parts of the central nervous system (CNS) and several neuro-endocrinological modulator systems. Generally, the discussion about the health hazards of alcohol and drugs has often focused on their deleterious effects on bodily functions and organs like the liver and lungs. However, the worst effect of alcohol and drugs is on the brain, because they cause long term neuroadaptive changes in the CNS which leads to compulsive drug use with frequent relapses and poor outcomes even after acute withdrawal symptoms have abated. Modern research on drug abuse has demonstrated the biochemical, cellular, genetic, epigenetic and circuitry mechanisms that mediate the progression from experimentation with a drug to addiction. These changes in the brain have a potential to continue for a long time after drug use has stopped.

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These changes in the brain have a potential to continue for a long time after drug use has stopped. Addiction is a biopsychosocial disorder similar to other chronic physiological disorders such as diabetes mellitus that are progressive and influenced by environmental factors and stressors. A diabetic person cannot claim that he will use his will power to keep a normal blood glucose level after he consumes a large amount of carbohydrate. Likewise, an addict cannot keep limiting his drug use and avoid bad consequences forever. But like a diabetic person who should avoid food that is rich in carbohydrates, an addict should take every precaution to stay away from drugs for good.

Alcohol and drugs have effects on four interrelated biological systems in the brain that underlie addiction.

These are brain reward system, brain stress systems, autonomic nervous system (related to physical withdrawal) and pre-frontal cortex function (related to cognitive inhibitory control).

Drug use produces biological changes that ruin the homeostatic operations of the CNS and a new state of chronic dysregulation (an allostatic state) is shaped[4].

Brain Reward Systems:

Reward system is the fuel of life. Mesolimbic dopaminergic system that connects nucleus accumbens and ventero-tegmental area and gives projections to the prefrontal cortex is the neural structure of the reward pathway. This brain circuit is present in human and all animals and it gives an appetitive stimulus to obtain innate needs (food and sex) that are necessary for survival of the individual and continuation of the generations. The pleasure imbedded in them is like a small fee given to the creatures to turn the wheel of physical existence.

Through this mechanism, Allah has programmed us to want things that we need to survive. For example eating food is not a burden that we just have to do but it is a pleasure we seek for. Rewards serve as positive reinforcers because they affect the behavior towards obtaining a goal that results in pleasure and satisfaction. When someone uses a psychoactive drug, he is abusing the reward system outside its special purpose. Almost all drugs of abuse stimulate mesolimbic dopaminergic system much stronger than the natural stimuli, thus they produce pleasurable effects initially.

Repetitive stimulation of this system causes sensitization that is responsible of craving for the specific drug. Drugs act like computer viruses that change the original program of a computer (the brain) and reorganize the system to perceive them as a basic need, re-program the system to produce an urge for them (drugs). The drug user imagines this strong desire for drugs as his natural will. Especially in the initial phases of addiction, they say “I use it as I want to use it”. They do not take into consideration that this urge is not innate and it develops after drug use. This strong feeling of desire (impulse) for drug use that affects decision-making process of the person is one of the key elements of addiction. Most of the drugs of abuse increase dopamine in the mesolimbic system directly or indirectly to produce a reward or a high. For example opiates act on opioid receptors which then stimulate dopamine receptors, cocaine competes with dopamine in the synaptic cleft for the dopamine reuptake pump and keeps dopamine in the cleft.

Activation of dopamine neurons is a motivational factor that produces reward-anticipation.

When a reward is higher than expected, sensitization of dopamine neurons incr-

eases. This sensitization increases the urge or motivation for the reward[5]. Drugs may produce different effects on individuals[6]. For example cocaine or meth-ylphenidate use increases dopamine levels in human brain and this increase is associated with pleasure. If drug-naïve subjects had low levels of dopamine D_2 receptors, they experience pleasure. But if they originally had high receptor levels, they experience unpleasant feelings. This study explains the biological mechanism of why drug use is pleasurable for some people and tends to be repetitive while it is unpleasant and not repetitive for others[6].

Neurotransmitters other than dopamine also play a role in reward system[7]. Dopamine independent reward mechanisms have been described for opioids and alcohol.

Serotonergic receptors in the nucleus accumbens mediate the reinforcing effects of psychostimulant drugs. Stimulation of μ-opioid receptors in the nucleus accumbens and ventral tegmental area are responsible for the reinforcing effects of opioids. Opioid receptors in the ventral striatum and amygdala mediate the reinforcing effects of ethanol. Acute intoxicating doses of alcohol also increase inhibitory γ-aminobutyric acid (GABA) in the amygdala. Activation of the mesolimbic dopamine system produces an incentive salience linked to the environmental stimuli and drives goal-directed behavior[1]. Pleasure (hedonic state) provided by the reward starts a learning process including condi-tioning with cues that are associated with drug use, assigning value and motivational status to the reward.

Motivational state produced by drug withdrawal is like hunger and sexual arousal that increase the incentive salience of the reward and related cues[8]. As the hunger or withdrawal rises, struggle to get the reward will accelerate.

The brain has a plastic property and it rapidly develops an adaptation to the effects of drugs. This is called tolerance. Repetitive use of a drug increases reward thresholds (decreases reward). For this reason, drug use does not produce satiety as in natural rewards like food. A person can eat up to a certain amount of his favorite food each time but increases the amount of a drug in subsequent uses. The person cannot get the same high from a drug during chronic use but he still experiences a high level of urge to use it. In other words, tolerance does not extinguish this desire. The brain keeps the value of possible actions in memory according to the amount of reward it produced in the past[5]. This stored value is used to evaluate possible results of future actions as reward or punishment.

Brain Stress Systems:

Stress system is the brain alarm circuit that is triggered by danger or unpleasant stimuli. Some neurochemicals that are activated by acute or chronic stressors initiate some typical behavioral responses. In animals various behavioral responses like freezing or flight may be observed[1].

Brain stress systems include neurocircuitry mediated by glucocorticoids, corticotropin-releasing factor (CRF), norepinephrine, and dynorphin. There are also neuro-chemicals like neuro-peptide Y (NPY), nociceptin, and endo-cannabinoids that oppose the brain stress systems.

Stimulation of nucleus accumbens, the reward system, also activates brain stress systems that subsequently feedback to decrease dopamine release in the mesolimbic dopamine system. Brain stress systems aim to neutralize the effects of the drug and restore normal function despite the presence of drug. This causes tolerance to the effects of the drug use and dysphoric

syndrome when the use is stopped because the change in stress systems continues although the drug use is avoided[1]. Adrenocorticotropic hormone (ACTH) and corticosterone are elevated during withdrawal and this disturbs the hypothalamic-pituitary-adrenal (HPA) axis and extra-hypothalamic brain stress system mediated by cortisol releasing factor (CRF).

Withdrawal and protracted abstinence from drugs produce anxiety and irritability mediated by CRF[1]. Dynorphin activation mediates depressive responses to stress and dysphoric responses during withdrawal from drugs[9]. Animal studies[10] show that when primates were conditioned to associate a cue with a pleasurable object like food, increased dopaminergic activity was a response to the cue and not to the food. Absence of food caused a drop in dopaminergic function. Reduction in the dopaminergic activity is considered to be associated with negative affect like dysphoria. So when an addict comes across with a cue (e.g. needle, money), and cannot access the drug he may feel dysphoric. This negative feeling will also increase the drive to get the drug.

Physical Withdrawal:

Withdrawal is the emergence of specific behavioral and physical symptoms following sudden discontinuation of a drug in subjects who had been under its chronic influence. It is the result of reversal of homeostatic mechanisms which had been disturbed by the drug before discontinuation[11]. In other words withdrawal is the result of sudden backward change of the homeostatic mechanisms that caused tolerance to the drug. Actually in stimulants and heroin, tolerance starts to develop very early on and the person cannot get the same effect from the same amount of drug and needs progressively higher drug doses to get the same effect, so that the person gets into the vicious cycle of tolerance. Acute physical withdrawal is related to the somatic effects of drug use. Long term use of many drugs leads to adaptations within the autonomic nervous system and its target organs.

This adaptation is disturbed when drug use is avoided[12]. For this reason, medications that modulate the autonomic nervous system, such as clonidine and propranolol are effective at reducing acute withdrawal symptoms. Acute somatic symptoms of withdrawal abate in days to weeks after the drug is discontinued, however, a chronic or protracted withdrawal state, where the patient suffers from unpleasant psychological symptoms especially triggered by drug cues, lasts for months to years.

Permanent changes in the brain may induce relapses to drug abuse long after detoxification.

Gamma-aminobutyric acid (GABA)-ergic system and the glutamatergic system play important roles in alcohol withdrawal[13]. Increased glutamatergic NMDA function is involved in seizures and cell death.

Amygdala and hippocampus are critical sites for glutamatergic hyperactivity.

Reduction in dopamine plays a role in both early abstinence and protracted withdrawal from many drugs of abuse[14].

Neuroimaging studies have shown reduced dopaminergic activity in opiate, cocaine and alcohol addictions. Even partial recovery of this change takes several months[6]. Altered reward neurotransmitters increase brain reward thresholds (a higher set point for drug reward) during abstinence. This in turn produces the negative motivational state in withdrawal (psychological symptoms of withdrawal) and makes the patient vulnerable to relapse[1].

Withdrawal symptoms are aversive for the drug user; therefore he starts to seek the

drug not for pleasure but to avoid withdrawal symptoms.

Impulse control And decision making:

Inhibitory control and decision making are key executive functions for the development of addiction and they are mediated by the forebrain. Prefrontal cortex (PFC) is involved in regulation of both limbic reward regions and higher-order executive functions. Therefore in addiction, PFC dysfunction is not only related to compulsive drug use but also underlines the dysfunctional behavioral pattern of drug addicts. Impairment of the PFC functions is also related to salience attribution in addiction. "Salience attribution" is ascribing excessive prominence to the drug and drug related cues, decline in sensitivity to non-drug reinforcers and less ability to inhibit maladaptive behaviors[15]. This impairment makes drug seeking and drug use the main motivational drive even though it leads to long term losses. It leads to neglecting other activities and the person can engage in extreme behaviors in order to obtain drugs[16]. The process ends in the weakening of free will.

Administration of drugs of dependence to drug naïve laboratory animals produces changes in PFC similar to those in human drug addicts. PFC impairment seen in drug addicts is a result of drug use that enables further use. However, PFC impairment is also present in several other psychiatric and neurological conditions such as borderline personality disorder, attention deficit and hyperactivity disorder (ADHD), schizophrenia and bipolar disorder and traumatic brain injury[17]. The presence of PFC impairment makes those patient groups more vulnerable to drug use and dependence. Executive functions mediated by the pre-frontal cortex are gained through biologi-cal maturation of the brain during adoles-cence. Therefore adolescent brain is more vulnerable to the harmful effects of drug abuse[18]. Different parts of the PFC are related to distinct features of addiction; for example medial orbitofrontal cortex and ventromedial prefrontal cortex to craving, orbitofrontal cortex to drug expectation, anterior cingulate cortex to attention bias and dorsolateral prefrontal cortex to drug-related memories[15].

Glutamatergic pathway starting from the PFC and controlling the dopaminergic neurons in the nucleus accumbens are associated with addiction[19].

Several other neurotransmitter systems such as endogenous opioid, serotonergic, cannabinoid and dopaminergic systems are also involved in prefrontal impair ment[15].Inhibitory control enables to take appropriate actions to accomplish complex tasks and provides adaptation to new environmental conditions by suppressing immediate or habitual responses.

Impairment in the inhibitory control is a key element in repetitive substance misuse and dependence[17]. Deficit in impulse control can be demonstrated with neurocognitive tests like color word Stroop task, continuous performance test and the stop-signal task. In laboratory gambling task where risky decision making is accessed, drug addicts tend to take actions associated with short-term gains although they can bring long-term losses[17].The individuals with impulsive personality traits are more prone to try and be addicted to drugs and drug use puts these individuals into a vicious cycle of further impulsivity[20].

Impairment in impulse control leads to a weakening in self control (the ability to postpone or avoid an activity that may not be appropriate or is perceived as incorrect)[21].

This explains the inability of drug addicts to inhibit excessive drug use although they

are aware of the destructive consequences. Impairment in impulse control and self control also underline engagement in criminal activities and aggression. Young individuals who already have weak self-control are more prone to substance dependence[21].

Conclusion:

The addicted brain is in a state of chronic dysregulation (allostasis) where function of reward circuits are impaired and stress systems are activated both of which lead to increased impulses to use drugs. Somatic withdrawal symptoms as well as emotional dysregulation also increase the urge for drug use. On top of these, dysregulation of the frontal cortex which is supposed to execute thoughts, impulses and emotions results in compulsive drug seeking and loss of control over intake. This is a process initiated by drug use and can be avoided primarily by staying away from drugs.

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ALCOHOL USE DISORDER: SCIENTIFIC HORIZONS AND ISLAMIC PERSPECTIVES

Mohammad Ali Albar, and Aly A. Misha'l*

Abstract:

Alcohol beverages have been used since antiquity. Alcohol dependence is a worldwide problem, more intense and widespread than all other drugs causing dependence combined. The tendency has been to manage the dilemma of alcohol dependence leaving aside the problem of availability and accessibility of alcoholic beverages in most communities around the world.
Historically, the USA trial to forcibly prohibit alcohol use by law (1919-1933) had failed miserably. Similar trials in USSR met the same fate.
Multiple terms are used to describe the clinical conditions associated with excessive use of alcohol. Over the past few years, the terms of alcohol abuse and alcohol dependence were replaced by a single diagnosis: alcohol use disorder, with the term "alcoholism" reserved for the more severe manifestations of alcohol use disorder, that could be fatal.
The diagnostic criteria of alcohol use disorder, its epidemiology, pathogenesis, clinical manifestations, adverse consequences, assessments and management are outlined in this paper, together with the Islamic perspectives and approach in eradication and prophylaxis.

Keywords: Alcohol, dependence, alcohol use disorders, intoxication, Islam.

Introduction:

The terms alcohol abuse and alcohol dependence were recently replaced by one diagnosis: alcohol use disorder[1]. The term (alcoholism) has been frequently used to describe the more severe manifestations of alcohol use disorder. Alcohol use disorder is a worldwide problem. It is more deleterious and widespread than all other drug dependencies combined [2]. Typical characteristics of this disorder include:

- Impaired control over drinking.
- Preoccupation with alcohol.
- Use of alcohol despite adverse consequences.
- Distortions in thinking, most notably: denial.

Definition of various levels of alcohol intake and the level that is considered abuse differs between countries[3,4].

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A "standard drink" in the US is 14-15 gm of alcohol (0.5-0.6 fl.oz), equivalent to 12 oz of beer, 5 oz of wine, and 1.5 oz of 80 proof liquor[5].
In UK: 19.75 gm of alcohol[2,3].
In addition to the amount of alcohol in "one drink", cut points to define "Moderate" and "Heavy" drinking also varies between countries[6]:
In the US the following parameters generally apply:
"Moderate drinking":

- Women: < 2 drinks per day.
- Men: < 3 drinks per day.

"Heavy drinking":

- Women: > 7 drinks per week or 3 drinks per occasion.
- Men: > 14 drinks per week or 4 drinks per occasion.

"Binge drinking":

- Women: 4 or more drinks in one occasion.
- Men: 5 or more drinks in one occasion.

No level of alcohol consumption can reliably be regarded as safe[7]. No studies have been published to predict alcohol abuse, or alcohol use disorder, in individuals who consume "moderate" amounts of alcohol, or who are described as "social drinkers". Any of these individuals, under certain circumstances, could turn into an alcohol abuse.
With the free availability and accessibility of alcoholic beverages in most communities, people of various ages could easily start as mild "social" or "moderate" drinkers and later turn into the category of alcohol use disorder and alcoholism.

Historical trials to curb alcohol consumption:

In the 20th century, because of the various hazards of alcohol consumption, there were trials to ban, or at least to curb it. In the USA, a trial to forcibly prohibit alcohol consumption, was implemented between 1919 and 1933. The Eighteenth Amendment to the USA constitution that was known as the Prohibition Amendment, was passed on January 16,1919, by the Congress, to be fully implemented after one year from its ratification. This amendment proclaimed that the manufacture, sale, transportation, importation and exportation of "intoxicating liquors" shall be legally prohibited. The Congress was authorized to enforce this amendment by appropriate legislation [8].
The alcohol prohibiting legislation did not change the public attitudes towards alcohol consumption. The majority of US citizens were incapable or unwilling to curb their drinking habit. Illicit production and illegal smuggling of alcohol continued and there was no decrease in the availability of alcoholic beverages. It became clear that the attempt failed and the amendment was repealed in December, 1933, by Congress. The wording of this repeal was very significant in stating: "The prohibition amendment, known as the Eighteenth Amendment, was not repealed on the basis of whether alcohol is good or bad, harmless or hazardous. The decision was made on the very realistic and practical basis that prohibition was not working" [8,9].
Some measures were adopted to curb excessive harms, including:

- Legislation prohibiting driving cars while intoxicated.
- Prohibition of sale of alcoholic beverages to youngsters.
- Limiting the hours during which the sale or serving of alcohol is allowed.

Unfortunately these measures proved fruitless. Even public education about alcohol hazards proved ineffective in the face of slick alcohol advertisement, and the influence of alcohol industry on public life. This industry generates huge profits

worldwide, and is ready to fight any real effort to curb alcohol consumption.

In the former Soviet Union, campaigns to curb alcohol consumption started at the time of the first Bolshevik government after the revolution. But by 1921, this policy failed. Alcohol consumption had returned to very high levels, and alcohol-related deaths escalated to almost 15-folds in some cities such as Moscow.

Subsequently, a series of campaigns against alcohol abuse were adopted under presidents of USSR, Brezhnev, Andropov and Chernenko under the general heading of reducing anti-social behavior. By 1984, there was some evidence that both alcohol consumption and alcohol-related crimes were falling. In early 1985, President Gorbachev pursued this line, and all organs of government were exhorted to develop strategies to reduce alcohol consumption. The All-Union Voluntary Society for the Struggle for Sobriety was launched in September 1985. This campaign finally collapsed in 1988. The collapse was ascribed to various factors, including major increases in illegal alcohol production and trade, as well as marked reduction of public finances, which dwindled by more than 28 billion roubles between 1985 and 1987.This was followed by an increase of alcohol-related mortality and a decline in life expectancy, especially among the young and middle aged. Changes on this scale were unprecedented anywhere in the world in peacetime [10,11].

These alcohol-related deaths were mainly due to injuries and cardiovascular diseases.

Epidemiology:

In all countries where the consumption of alcohol is legally permitted, the majority of the adult population drink. A National Epidemiologic Survey on Alcohol and Related Conditions was conducted in USA from the year 2001 to 2002. The prevalence of alcohol abuse and dependence over a life time and over the last 12 months was 17.8% and 3.8%[12].

According to the 2008 National Survey on Drug Use and Health, 51.6% of Americans aged 12 years or older, reported being current drinkers of alcohol. This translates to around 129 million people. More than 58 million of them reported binge drinking in the 30 days prior to the survey, and more than 17 million reported heavy drinking[13].Increased rates of alcohol dependence have been found to be associated with male sex, younger age, being single, lower income and White or Native American ethnicity[12]. Middle-aged adults (30-64 years) have been found to be at the highest risk for alcohol abuse. In children and adolescents, statistics are very worrisome. According to the "Monitoring the Future Study", 16% of eighth graders had consumed five or more drinks at one occasion within the last two weeks preceding the study[14]. Alcohol is by far the most commonly used drug among high school students. Seventy two percent of the students have consumed alcohol by the end of high school, and 39% have done so by the 8th grade. In 2008, 55% of the 12th graders and 18% of the 8th graders reported having been drunk at least once. This compares with 10- 20% of high school seniors reporting use of cocaine, and 40-50% reporting marijuana use[14].

Statistics from other parts of the world are not less alarming. Binge drinking (consuming five or more drinks in a single occasion) is a significant component of drinking behaviors in teens and individuals in their twenties. In a cross-sectional study from Britain, 56% reported binge drinking at least once in a seven day period[15].

Compared with individuals who begin drinking at or after 21 year of age, early drinkers have been found to be four times

more likely to develop alcohol dependence and more likely to be involved in alcohol-related violence[16,17].
Evidence suggests that high doses of alcohol at an early age may result in lasting effects on neurophysiological function[18], and addiction.

Economic costs:

Literature is full with staggering economic burdens on the individual, family and state. In the US, the total cost to national economy from alcohol abuse and dependence was estimated to be 185 billion USD for 1998[19-21].
This includes costs of treatment, associated diseases, crime, loss of work time and other expenses. There are other costs that are difficult to quantify including; domestic violence, child abuse and loss of a promising future.
Approximately 27% of heavy alcohol drinkers miss one or more days of work every month, 15% due to an injury or illness.
Alcohol problems in many parts of the world constitute a serious impediment to socio-economic development and threaten to overwhelm their healthcare systems.

Alcohol and overall health:

Alcohol use represents an unusual challenge for clinicians, social workers and healthcare policy makers.
Medical literature is replete with discussions and debate about risks and benefits, related to various levels of alcohol consumption. There is general agreement that problem drinking reduces the quality of life for individuals, their families and societies. However, only few studies have properly evaluated how "social" and "moderate" alcohol consumption affect the quality of life, and health parameters. Some studies made conclusions dependant on self-reported health, sick leave relationship with alcohol consumption and other parameters.
In 1987, the Royal College of Physicians (RCP) published a series of seminal reports on the topic of UK government policy on alcohol. The main report was significantly titled: "The medical consequences of alcohol abuse, a great and growing evil"[22].
The evidence on the risks of alcohol consumption is complex. Most systems of the body can be damaged by alcohol consumption, but the rate at which harm increases in relation to the amount of alcohol consumed varies between different systems. For example, liver disease has an exponential relationship with alcohol consumption, whereas the risk of cancers shows a dose dependent relationship.
The risk to which an individual is exposed to is related to both the amount and the frequency of drinking, in addition to genetics and age.
All alcohol consumption carries a level of risk. There is no data to indicate how much alcohol is safe. But, given the fact that alcohol consumption is widespread and enjoyed by many, there was a judgment about what an acceptable level of risk was. RCP published certain guidelines, based on this very difficult judgment.
It recommends "sensible limits of drinking". These limits have been argued about for years and in different countries. They include variations in the numbers and amounts of drinks per week, which are different between males and females. To minimize hazards of alcohol consumption, RCP recommended that people should have three alcohol-free days per week.
In December 1995 these government-adopted guidelines were reviewed and changed following some circulated evidence indicating that alcohol drinking might give protection from coronary heart

disease. These changes were not recommended by RCP. In fact they were adopted by an interdepartmental group, comprising of civil servants [23]. They made two extremely significant changes to the RCP guidelines.

Firstly, they substituted the weekly limit with a daily one. This, in effect appeared to sanction daily drinking, which is considered one of the key risk factors for alcohol dependency (addiction) and also for alcohol-related harms. Secondly, the daily drink limits led to a 30% increase in the RCP's adopted guidelines.

These government guidelines were never supported by a review of evidence carried out by the RCP, Royal College of General Practitioners and Royal College of Psychiatrists. As a matter of fact, RCP disputed these guidelines, and reported that daily drinking is an important risk factor for the development of alcohol dependence and for alcoholic liver diseases.

RCP also reported that the majority of young people confine their drinking to "binges", once or twice a week. These binges are associated with major health harms, including accidents, violence, self harm and suicide, and as a result, alcohol is the leading cause of death in the 16-24 age group [24]. A very large number of young people develop alcohol dependence, and become on track to develop physical health complications as they move into their 30s and 40s[25-26].

On this basis, RCP criticized the UK governmental guidelines of 1995, and considered them potentially dangerous. One aspect of this criticism is that alcohol dependence is effectively a disease of the young.

In November 2007, RCP in coordination with the Alcohol Health Alliance UK (AHA), pursued diligent activities to address the escalating harms of alcohol consumption. These activities were:

- Highlighting the rising levels of alcohol harm.
- Proposing evidence-based solutions to reduce this harm.
- Influencing decision makers to take positive action to address the damage caused by alcohol abuse.

The World Health Organization (WHO) coordinated many forums, global and regional studies and publications on the global alcohol hazards since its inception.

Alcohol consumption was considered among the top ten causes of mortality worldwide. In 2002, alcohol was reported to be the underlying cause of some two million deaths per year in the world[27]. Since then this figure has clearly increased.

The health hazards related to alcohol are multiple and well documented[28]. They come from both acute consequences (accidents, intoxication…), and chronic ones (liver disease, cancer, cardiovascular disease). The harmful effects include mortality, morbidity and socioeconomic ills.

WHO repeatedly advocated population-based global interventions, alcohol consumption policies and strategies. There is consensus about effective interventions reported in the WHO's "Alcohol and Policy Group"[28] which address reducing availability of alcohol by all possible measures.

Controlling advertising and marketing of alcoholic beverages is a popular public topic which is attractive to politicians. The major problem is the ineffectiveness of "partial" restrictions, and unfeasibility of total ban. Thus, alcohol-related harm calls for comprehensive measures and principles[29].

Drinking habits are communicated by global marketing, advertising and media.

The "westernization" of drinking habits means escalation of alcohol consumption in many parts of the world. The alcohol

industry is increasingly globalized, and the big multinational companies have considerable lobbying power to protect their commercial interests. Lobbying by the big alcohol industry has deterred the WHO, the specialized health agency of the United Nations, from any stronger actions.
Health-concerned leaders, worldwide, are continuously seeking international and global effective collaborations to counteract the alcohol-related problems[29].

Medical morbidity:

Alcohol can be a significant contributing factor to many illnesses, such as hepatitis, hypertension, tuberculosis, pneumonia, pancreatitis, and cardiomyopathy[30]. It is known that alcohol abuse exposes people to infections, and hampers their healing. One half of all cases of liver cirrhosis in the USA have been attributed to alcohol. Excess alcohol consumption also contributes to central nervous system disease and severe psychiatric disorders.

Alcohol and specific illnesses:

❖ **Accidents, trauma and violence:**

Alcohol is implicated in the increased morbidity and mortality from trauma[31], including collisions with greater severity of injuries in motor vehicle accidents[32]. There is an increased risk of injuries due to falls, burns, and violence. There is also increased risk of drowning. In addition, there is an increased incidence of occupational injuries and there is no identified safe level of alcohol consumption for the use of potentially dangerous equipment. Suicide, homicide, serious assaults and rape are significantly increased with alcohol intake[33,34].
Alcohol and injury has been addressed extensively in the world literature.
WHO publications provided significant information in areas of alcohol drinking-adverse effects, alcohol intoxication, injuries and the role of alcohol in emergency departments visits / hospitalizations.
Globally, alcohol causes 3.2% of all deaths (1.8 million deaths annually). It is estimated that about half of the deaths attributable to alcohol are from injuries.
Alcohol also accounts for 4.0% of all disease burden worldwide.
The problem of alcohol-related injuries is particularly alarming in many low-and middle- income countries, where alcohol consumption is increasing. Consequently, injury rates are extremely high, where there is lack of appropriate public health facilities and policies to deal with this increase.
Emergency rooms are the most important sites to collect information about alcohol involvement in injuries. Unfortunately, few hospitals collect this information routinely[35]. In view of unlikelihood of majority of involved subjects to access health care apart from emergency departments, the collection of pertinent data from these patients regarding their drinking patterns is lacking, which significantly hinders proper interventions in this hard-to-reach population group.
Some of the conclusions of the WHO Collaborative Study on Alcohol and Injuries, a cross-sectional study conducted in 12 countries from various parts of the world from December 2000 to February 2002, revealed a clear relationship between alcohol consumption and the risk of injury. Up to 45% of injured patients reported consuming alcohol prior to their injuries. The majority of patients were males, under 35 years of age, with a peak in the late teens and young adults from low to middle socioeconomic classes. More than a third of patients reported that their injury occurred within 30 minutes of their last

drink. The study was a useful tool to inform health policy-makers of the high burden of injuries associated with alcohol use.

Cancer:

Alcohol use has been associated with increased risk for cancers of multiple organs[36]. The following is a brief review of the literature describing specific cancers:

❖ Breast Cancer**:**

There is consistent evidence that breast cancer risk is higher for women consuming low (less than one drink /day) to high (3 or more drinks/day) compared with abstainers. There appears to be a significant dose response relationship that begins with alcohol intakes as low as 3-6 drinks per week[37-39]. A meta-analysis of 110 epidemiologic studies conducted in 2013, showed a small but significant association between female breast cancer and light alcohol intake[40]. In the largest cohort study of 105,986 women in the Nurses' Health Study, from 1980 until 2008[39], there was a gradual increase in the risk of breast cancer at lower levels of alcohol intake (3-6 drinks per week), with upward increase of cancer of 10% with each 10 grams of alcohol intake. Cancer risk was linearly correlated with cumulitive lifetime alcohol intake. Moreover, there seems to be greater potential for invasiveness of breast cancer cells associated with alcohol intake[37].

❖ Gastrointestinal (GI) Cancer:

Several GI cancers are linked to alcohol consumption, even at low levels of intake. In a study of 226,000 men, the combined mortality rate from cancers of the mouth, larynx, pharynx, esophagus, and liver was 40% higher in low (less than daily drinkers) than in abstainers, and rose progressively with heavier consumption[36].
The type of alcoholic beverage, by most evidence, does not alter this risk[41].
There are several studies describing correlation of GI cancer risk with alcohol intake, with no clear safe threshold of consumption identified[42]. In one of these studies, as an example, a 2013 meta-analysis of 36 epidemiologic studies demonstrated that light alcohol intake (< 1 drink per day) was associated with an increase in risk of oropharyngeal cancer (RR 1.17, 95% CI 1.06-1.29)[40].

Nonmalignant liver disease:

A study of 277,000 men revealed elevated risk of death from cirrhosis among mild drinkers as compared to abstainers. The relative risk of those who had consumed one or two drinks per day were: 1.21 and 3.15, respectively[43]. This implies gradually increased risk of cirrhosis, with increased levels of alcohol consumption.
Many studies revealed more cirrhosis prevalence in heavy drinkers. One half of all cases of liver cirrhosis in the USA have been attributed to alcohol.
Some of the increased risk associated with moderate drinking may be due to alcohol interaction with other hepatotoxic agents, especially hepatitis viruses[44]. It is well established that cirrhosis is associated with increased risk of hepatocellular cancer.

Cholelithiasis:

In the Nurses' Health Study, women who consumed at least 2-3 drinks weekly were 40% less likely to develop symptomatic gall stones than abstainers[45]. The mechanism of this protective effect may be due to reduction in the biliary cholesterol saturation index[46]. This benefit is reversed

in heavier alcohol consumption, especially with alcoholic cirrhosis[47].

Pancreatitis:

Heavy alcohol intake predisposes to both acute and chronic pancreatitis. Moreover, mild alcohol consumption may increase relative risk of chronic pancreatitis [48].

Osteoporosis:

Heavy alcohol use predisposes to hip fractures by causing both osteoporosis and falls[49]. Several studies showed mixed relationship of "moderate" alcohol intake, bone mineral density and fractures.

Diabetes Mellitus (DM):

The risk of DM was reported as decreased in people with moderate alcohol consumption[50]. A meta-analysis of 15 cohort studies found a decreased risk of diabetes among light to moderate, but not heavy drinkers[51].The validity of these studies is questionable because they are observational studies. In any case, studies suggest the following mechanisms for the reported low DM risk:

- Improved insulin sensitivity and lower plasma insulin levels[52].
- Lower level of oxidative stress and inflammatory markers[53].
- Potential effect of alcohol on postprandial hyperglycemia[54].
- Effects of "moderate" alcohol intake on adiponectin (an adipocyte hormone) which improves insulin sensitivity in animal models[55].

On the other hand, alcohol may worsen diabetic neuropathy[56], and my induce severe hypoglycemia, lactic acidosis, hypertriglyceridemia and fatty liver[57,58].

Heavy drinking is detrimental to the management, morbidity and mortality of diabetic subjects.

❖ **Pregnancy:**

Alcohol is known to have teratogenic effects, and alcohol consumption while pregnant increases the risk of fetal maldevelopment[59,60].

A spectrum of birth defects related to alcohol has been described and is called Fetal Alcohol Syndrome (FAS). It is characterized by fetal growth restriction, central nervous system dysfunction, renal anomalies and a characteristic facies[61].

No safe level of alcohol intake during pregnancy exists[62]. A large case-control study of more than 4,700 babies with congenital abnormalities found that even sporadic intake of only 1-2 drinks during the whole pregnancy was associated with higher risks of eye abnormalities, particularly microphthalmia [62]. Low birth weight may also be a consequence of mild alcohol consumption during pregnancy[63].

Moderate drinking may raise the risk of spontaneous abortion[64]. This risk increases with the increased alcohol consumption[65].

No evidence supports a benefit of alcohol use during pregnancy to the mother or fetus. There is consensus that women should completely abstain from alcohol during pregnancy[66]. However, recent data from Australia indicate that up to 65% of women drink significant amounts of alcohol before and during early pregnancy[67].

Cardiovascular disease:

There are conflicting reports related to "social" or "moderate" alcohol consumption and cardiovascular disorders. Our knowledge of effects of (moderate) alcohol consumption is derived primarily either

from short-term trials analyzing effects of alcohol on physiological parameters, or from observational studies that compare moderate drinkers with abstainers. Both types of studies suffer from limitations[68]. Their validity and reliability is less than cross sectional or cohort studies. They could be adversely influenced by various factors including the lobbying liquor industry.

Some observational studies in USA reported that "moderate" alcohol drinking may have some cardio protective benefits particularly in regards to coronary heart disease (CHD)[69]. These studies were not supported by similar studies in Europe, Russia or Australia- New Zealand. In addition, these observational studies are usually based on comparison of alcohol drinkers with abstainers (non-drinkers). The latter group of individuals is very heterogeneous. Some of them avoid alcohol because of medical conditions, family history of alcoholism, past personal history of alcohol intake, religious or cultural factors.

A large systematic review and meta-analysis of 84 studies, conducted in many countries from nearly all over the world, reported that light to moderate alcohol consumption was associated with a 14-25% reduction in the risk of multiple cardiovascular outcomes, compared to non-drinkers[70]. Consumption of larger amounts of alcohol was associated with higher risk of mortality.

A meta-analysis of 34 studies (comprising over a million subjects and 94,000 deaths) found that total mortality was reduced by 18% in women who consumed one drink daily, and in men who consumed one to two drinks daily, compared to non-drinkers[71]. More than the above level of alcohol drinking was associated with increased risk for sudden death[72]. Binge drinking was associated with increased cardiovascular disease risk and sudden cardiac death.

To date, randomized trials in this area have not been performed.

The risk of heart failure was reportedly reduced with light to moderate alcohol consumption[73].

Chronic alcohol consumption on the other hand, may lead to alcohol-induced cardiomyopathy. The incidence of atrial fibrillation (AF) was increased by heavy and binge drinking, while moderate drinking does not seem to increase AF.

The incidence of hypertension was increased by 1.5 to 2 folds in those who consume more than two drinks daily compared to non-drinkiers[74]. This effect is dose dependent.

Problem drinking is clearly related to excessive mortality[75]. It is the third leading preventable cause of death in the US[76].

Following the publication of these observational studies indicating that drinking alcohol might give some protection from coronary heart disease, the Royal college of Physicians (RCP), together with other Royal Colleges, published a report in 1995[77]. The report reviewed these studies alongside data on all-cause mortality, psychosocial risks and the possibility that publicizing these recommendations have led to an overall increase in alcohol consumption, and an increase of the number of heavy drinkers. The RCP report balanced the potential benefits of alcohol intake against its harms/ risks. It could be summarized in the following points:

- For young men: The major causes of death due to alcohol consumption are accidents and violent deaths.
- For premenopausal women: Any assumed protective effects against coronary heart disease are balanced by deleterious effects on breast cancer, and on pregnancy

- For men aged 55 to 60 years, alcohol harms outweigh any coronary heart disease benefits.
- Older people are particularly vulnerable to various harms of alcohol, due to physiological changes associated with aging, even at modest levels of alcohol intake. They are prone to have higher blood alcohol levels than younger people on drinking the same amount of alcohol due to lower body mass to water ratio, reduced hepatic blood flow and less efficient hepatic metabolism.

Moreover, older people are prone to develop more depression, dementia, falls and physical illness. Recommended limits for "safe" drinking by older people require further considerations. Considering the increasing of aging population, an increased alcohol-related morbidity and mortality is expected.

- Defining the boundary between moderate and hazardous drinking is not clear cut.
- The possible protective effects on coronary heart disease could be achieved by lifestyle changes including diet and exercise, as well as the use of statins.
- Individual factors also contribute to the risks of alcohol consumption, including medication use, co-morbidity, frailty and physiological changes associated with aging.

In Russia, there was increased mortality from cardiovascular disease linked to alcohol consumption, which is contrary to the view prevailing in some countries in the West, where alcohol, at least in moderate amounts, is seen by some as cardio-protective[69]. Some of the explanations of this discrepancy include:

- Binge drinking has effects on the heart which are different from those seen in regular moderate consumption [79,80].
- This pattern leads to a greatly increased risk of sudden cardiac death[80].
- Excessive drinking, especially of strong alcoholic drinks, such as "vodka", was recently reported, by a large prospective study, to be a major cause of premature death in Russian adults[81].
- Moreover, alcohol-related mortality increased exponentially with the increased amounts of alcohol consumed. Death at ages 55-74 years ranged from around 50% for those consuming less than a bottle of vodka per week, to as high as 64% for those consuming three or more bottles of vodka per week.
- Excess mortality in this study was from external causes (accidents, violence, suicide, homicide …) or from eight diseases, including cardiovascular deaths (acute ischemic heart disease other than myocardial infarction).

Excessive alcohol consumption and binge drinking are the third leading cause of preventable death in the United States[82], and most likely in the rest of the Western world.

From all these studies, including the observational studies, researchers provide the following general recommendations:

(1) The reported cardiovascular benefits of social or moderate alcohol drinking were not validated by randomized studies.

(2) Social or moderate drinkers could become "problem" drinkers under various pressures and circumstances, and the deleterious sequellae on the cardiovascular system will escalate.

(3) Binge drinking is associated with serious cardiovascular complications.

(4) Any apparent advantage of moderate drinking must be balanced against the deleterious effects of alcohol on other disorders, including cancer, liver disease, central nervous system and psychological derangements, violence, and socioeconomic problems.

(5) The risk-benefit balance may vary in different age group and ethnicities.
(6) There is no evidence to support encouraging people, with or without CHD, to drink alcohol.
In 2001, The American Heart Association (AHA) Science Advisory Council concluded:
There is little current justification to recommend alcohol (wine specifically) as a cardioprotective strategy[83].
In 2006, AHA recommended: In the absence of randomized trials, the consumption of alcohol cannot be recommended for CVS risk reduction[86].
Alcohol beverage types were studied in view of reports that French red wine produced lower coronary artery disease mortality[85]. Red wine contains phenolic and flavonoid substances that have anti-thrombotic and antioxidant properties[86].
However, small human studies demonstrated similar protective properties in using de-alcoholized red wine[87]. This material is also present in red grapes. Resveratol (3,5,4'-trihydroxystilbene) is a substance produced by plants in response to stress, and is found in grape skin and also in red wine. This substance was found to extend life of non-mammalian organisms, and to improve the metabolic profile and lifespan of mice fed high fat diets[90]. In man, this substance has to be used in large amounts to produce enough concentrations.
Genetic factors have significant implications on alcohol effects on ischemic heart disease. In a study of 3383 Danish men found that alcohol consumption was only protective for men with Lewis blood group Le(a-b-) who are particularly prone to ischemic heart disease[89].
This observation was also reported from the Framingham Offspring Study in individuals carrying the Lewis gene-3 (FUT3) gene[90].
Effects of the (alcohol dehydrogenase gene) were studied in a case-control study of 396 men with myocardial infarction and 770 men as a control group. This gene has two forms (alleles), one of which metabolizes ethanol quickly (reducing the body's exposure to alcohol), and the other allele metabolizes ethanol slowely[91]. Daily drinkers with two copies of the faster alleles had a 38% lower risk of myocardial infarction, as compared with non or rare drinkers.

Stroke risk:

A meta-analysis of 19 cohort, and 16 case-control studies found the following risks of stroke in drinkers, compared to non-drinkers[92]:

- Heavy drinking increases the risk of all strokes.
- Moderate drinking: no significant reduction in the risk of all strokes.
- Light drinking: lower risk of all strokes.

These observations were in contrast to another meta-analysis[93.] "The Nurses' Health Study" which found that even light drinkers had twice the risk of subarachnoid hemorrhage compared to nondrinkers. The study revealed a slightly lower risk of ischemic stroke, but higher risk for hemorrhagic stroke[93].
Binge drinking was associated with increased risk for all strokes[94].
The effects of alcohol may be modified by ethnicity. As an example, in Japan, moderate alcohol use may slightly raise the risk of dying from stroke[95].

Alcohol intoxication:

Two-thirds of American adults consume alcoholic beverages. Up to 10% of adults are alcohol abusers. Acute alcohol intoxication is estimated to be responsible

for over 600,000 emergency department visits each year[96].
Acute alcohol intoxication is associated with significant increase of traffic accidents, domestic violence, homicide and suicide. In one study, ethanol was detected in 15 to 40% of unselected emergency department patients[97].
Clinical manifestations of intoxication can include slurred speech, nystagmus, disinhibited behavior, incoordination, unsteady gait, memory impairment, stupor or coma.
Acute intoxication can also induce hypotension and tachycardia, secondary to peripheral vasodilatation or to volume loss. Multiple metabolic derangements may occur, including hypoglycemia, lactic acidosis, hypokalemia, hypomagnesemia and hypophosphatemia[98].
This clinical presentation may be complicated by ingestion of other substances such as opioids, sympathomimetic drugs, benzodiazepines, barbiturates, and other drugs. Serum ethanol concentration, although helpful in confirming the diagnosis, and for legal and forensic investigations, often does not correlate closely with the symptomatology of acute intoxication. Taking in consideration the possibilities of head trauma, mental status changes, presence of other disease entities, consumption of other drugs, the management of moderate to severe alcohol intoxication represents a real emergency medical challenge.

Alcohol withdrawal:

Drinkers with heavy, prolonged alcohol use are at increased risk for alcohol use disorder, and its consequences.
Excessive alcohol drinking for even one week can lead to some withdrawal symptoms, and excessive drinking for over one month leads to significant withdrawal symptoms[99].
The characteristic withdrawal syndrome is manifested within hours or days of stopping or reducing alcohol use. Two or more symptoms must be present, such as sweating, tachycardia, tremulousness, anxiety, headache, nausea and/or gastrointestinal problems.
More severe manifestations are generalized tonic-clonic seizures[100], hallucinations and delirium tremens which could be fatal[101].

Alcohol Availability and Accessibility:

In view of legalization of production, import, export and sale of alcoholic beverages in most countries, alcohol is freely available and accessible. The limited legal measures to control some of the consequences have proved fruitless.
The worldwide tendency towards treatment of alcoholic individuals while ignoring the problems of availability and accessibility contradicts the diligent global measures to prevent other dependence-producing drugs, such as opiate, cannabis…etc. This was expressed by the WHO Expert Committee on Drug Dependence[2]:
"In many parts of the world, problems associated with the use of alcohol far exceed those associated with the non-medical use of less socially accepted dependence-producing drugs such as those of amphetamine, cannabis and morphine types" [2].

The worldwide tendency to treat alcoholism, while ignoring the problem of availability and accessibility of alcohol has proved largely fruitless. There prevails a striking disparity between public, governmental and international attitudes towards alcohol vs other addicting drugs.
The ill effects of alcoholic beverages far exceed those of opiates, barbiturates and hallucinogenic drugs, such as cannabis and LSD put together[2].

The main factors behind this major imbalance in approach are:

(1) Alcohol is deeply integrated in many cultures, especially in Western cultures. Attempts to prohibit its consumption are neither desirable nor possible to the majority of the populace.

(2) Licensing laws have been lax[102]. In Australia and New Zealand, as examples, it has been well established that licensing premises is associated with a significant amount of alcohol-related harm[103,104]. All governmental efforts to control alcoholic beverages have failed to produce the desired effects. Alcohol consumption continued to increase[105].

(3) Alcohol advertising: This is a global handicap! The experience from Australia-New Zealand may be illustrative. The Royal Australian College of Physicians (RACP) and the Royal Australian and New Zealand College of Psychiatrists (RANZCP) have worked together to address the problem of the irresponsible marketing and promotion of alcohol products. Several recommendations were adopted to counteract the influences of alcohol beverage industry and that of the harmful marketing, promotion and advertising. It seems that the efforts by these professional organizations have been unsuccessful in curbing these dominant influences [106]. Although alcohol industry published its "DrinkWise Australia", there is pessimism among many clinicians and policy makers about the success of this and other current strategies to prevent alcohol-related harm. It is a fact that there are minimal regulations of alcohol advertising and promotion. Significantly, the bulk of advertising is aimed at young people!.

Effective and evidence- based clinical practice and prevention strategies acceptable at the government level, often face opposition from the alcohol beverage industry[107]. The community continues to suffer unacceptable burdens of harm from alcohol-related problems.

In the view of Royal College of Physicians (RCP), evidence suggests that policy measures to tackle the price, availability and promotion of alcoholic drinks are the most effective way of dealing with alcohol abuse [108].

Alcohol: Remedy or Malady:

From the previous literature review of scientific evidence related to alcohol consumption risk, harms and possible benefits, the following conclusions could be derived:

- There are established risks of morbidity and mortality caused by alcohol consumption, which include increased risk of various cancers, cardiovascular, and neuropsychiatric diseases and complications, in addition to increased risk of fetal malformations. Added to these are the increased incidences of violence, suicide, homicide, family and work productivity disorders. There is also established worsening of many pre-existing medical disorders of various systems.
- The reported "observational" reports of cardiovascular benefits of "social" or "moderate" alcohol consumption, could not stand in the face of major medical, psychosocial and economic harms. All these reports were not validated by randomized studies. The Royal College of Physicians in 1987 submitted to the fact that "alcohol consumption is widespread and enjoyed by many" and that was behind issuing a "judgment about what an acceptable level of risk was"[22].

In addition to this fact, the dominant influences of profiteering alcohol industry, marketing and advertising play major roles

in curtailing any meaningful measures to curb the universal alcohol consumption problem.

- There are staggering economic consequences of alcohol consumption.
- Alcohol consumption is frequently associated with smoking and other addictive substances.
- Starting alcohol consumption in younger age groups and frequent binge drinking are instrumental in increasing tendency to transit from "moderate" and "social" drinking to alcohol abuse disorders or alcoholism under various personal or social influences. These are all looming dangers of problematic alcohol use.
- The current tendency to deal with alcohol use disorders, while leaving aside the problem of alcohol availability and accessibility, have proved to be fruitless.
- Most countries adopt legalization of alcohol consumption, with certain limitations such as on drinking whilst driving cars, and sale to younger age groups. Such limitations are without real effectiveness in the face of alcohol availability and accessibility.
- Currently, the strong and slick advertisement, in addition to the dominant influence of alcohol industry on policy makers, are strong barriers to negate any influence of education on the various dangers of alcohol consumption on the health, welfare and safety of individuals and societies.
- Alcohol prohibition by forcible legal measures was historically attempted in both the USA and in the previous Soviet Union, but unfortunately ended up with disastrous failure.

  A multiplicity of factors were believed to be behind failure of these historical attempts. They include lack of proper education, and of moral-religious motivation / up-brining, in addition to the influences of the profiteering alcohol industry.

Islamic Perspectives:
Why Islamic guidance succeeded and others failed? :

Fourteen centuries ago, Islam had completely and successfully eradicated alcohol consumption, in a society in which it was deeply entrenched and intertwined with their daily lifestyle, social occasions, culture, rituals and rites. A gradual approach together with nurturing of moral values in Muslim individuals and societies were the reasons for this success. In the pre-Islamic era, and even during the early Islamic years, alcohol consumption was a deeply entrenched, widespread and indispensible tradition. It was considered a source of joy, nutrition and promotion of good health. Islam did not primarily attack alcohol intoxication. Islam, rather dealt with the deep-rooted false belief and value system upon which many habits and behaviors were based. When Islam addressed established habits and traditions, Islamic guidance tended towards gradual approaches that went hand in hand with nurturing of values and faith of individuals and societies. Over three years, Qura'nic verses addressed the issue of alcohol, and other deep-rooted traditions, by first outlining risks and dangers that outweigh any limited benefits. The first Quranic verse in this regard was:

"يَسْأَلُونَكَ عَنِ الْخَمْرِ وَالْمَيْسِرِ قُلْ فِيهِمَا إِثْمٌ كَبِيرٌ وَمَنَافِعُ لِلنَّاسِ وَإِثْمُهُمَا أَكْبَرُ مِن نَّفْعِهِمَا ...".

"They ask you about khamr (alcohol, intoxicants) and gambling. Say: In them is a great sin, and benefits for mankind, but their sin is greater than their benefits" [109].

The verse points out that there are grave sins and some benefits involved in alcohol consumption, with greater preponderance of major and versified harms, that exceed their benefits.

This risk-benefit imbalance was later established by contemporary scientific evidence as shown in the literature review cited above. Muslim commentators that time, at their level of scientific-medical knowledge, had explanations of the word (sins). They defined (sins) as harms and risks including religious wrong- doing, and harmful clouding of thinking that precludes proper attention and performance of worship and other functions[110]. Another *Tafsir* (explanation) referred to the harmful effects of wasting of wealth (*mal*) and clouding of thinking (*aql*)[111]. They were not aware of the grave physical and mental consequences of alcohol consumption, as recently revealed by scientific evidence.

Muslim commentators explained the word "benefits" in terms of some general prevailing impressions at that time, such as improvement of digestion, getting rid of excretions, joyous feelings, in addition to sale profiteering[110].

This initial Qura'nic verse was enough for many devout Muslims to turn away from *khamr* and gambling, seeking purity and blessings of their Creator.

Subsequently, the next Quranic verse was revealed:

"يَا أَيُّهَا الَّذِينَ آمَنُواْ لاَ تَقْرَبُواْ الصَّلاةَ وَأَنتُمْ سُكَارَى حَتَّىَ تَعْلَمُواْ مَا تَقُولُونَ..."

"O believers, do not perform prayers when you are drunken (intoxicated), so that you know (understand) what you are saying"[112].

This verse was revealed when a *sahabi* (companion) of the Prophet (ﷺ) performed prayer while inebriated, and made hideous mistakes in reciting the Glorious Qur'an in his prayer.

This restriction was very significant in two ways:

(1) Alcohol consumption was placed, for the first time, face to face against the cardinal worship of the 5 ritual prayers (*salah*) that are distributed thoughtout the day, starting with dawn (*fajr*) prayer and ending with the night (*isha*) prayer.

(2) This partial restriction was very pertinent in the process of breaking the basis of alcoholism (addiction). The Arabs at that time had established drinking traditions of morning drinking (*Sabouh*), as well as early evening drinking (*Ghabough*). The new restriction was instrumental in reducing and wide -spacing of drinking episodes. In fact, there would be limited time left for drinking, if one has to attend to these collective prayers in the mosque, or at home, five times a day. Breaking the habitual drinking for longer hours every day is effective in minimizing tendency to alcohol addiction.

The final and most decisive step of total prohibition was delivered in the wake of a major feast that included both *Muhajirin* (from Makkah) and *Ansar* (from Madinah) at which hard liquour was served. Once intoxicated, there insued a state of tribal boasting, shouting and hand fighting. As they were restored to their senses, and the effects of liquor had worn off, they intered into a state of depression, and deep feelings of sinfulness and guilt.

At this point the decisive Qur'anic verse was revealed.

"يَا أَيُّهَا الَّذِينَ آمَنُواْ إِنَّمَا الْخَمْرُ وَالْمَيْسِرُ وَالأَنصَابُ وَالأَزْلاَمُ رِجْسٌ مِّنْ عَمَلِ الشَّيْطَانِ فَاجْتَنِبُوهُ لَعَلَّكُمْ تُفْلِحُونَ، إِنَّمَا يُرِيدُ الشَّيْطَانُ أَن يُوقِعَ بَيْنَكُمُ الْعَدَاوَةَ وَالْبَغْضَاء فِي الْخَمْرِ وَالْمَيْسِرِ وَيَصُدَّكُمْ عَن ذِكْرِ اللَّهِ وَعَنِ الصَّلاةِ فَهَلْ أَنتُم مُّنتَهُونَ "

"….Satan wants only to cast enmity and hatred among you, by means of khamr (alcohol, intoxicants) and Maysir (games of chance), and to turn you away from the remembrance of Allah and prayer. Will you not then desist?"[113].

At the final stage of this historical event, Prophet Muhammad (ﷺ) proclaimed his famous *Hadith*, whereby he cursed *Khamr* (alcohol, intoxicants), the one who drinks it, brews, sells or even serves it[114].
Following this *Hadith*, in a matter of a day or two, the Muslim community in Madinah got rid of all their stored alcoholic beverages, and became abstinent, in the most successful campaign that had ever been launched by man against alcohol consumption. Ever since these fateful days, Muslims all over the world, from various ethnicities and cultures, became liberated from alcohol, or are the least affected among world populations. Islamic spirit and religious conviction were able to accomplish what could never be achieved by external sanctions of man-made laws.

The use of alcohol as medicine

The issue of using alcohol as a medicine in certain ailments, was addressed by several prophetic *Ahadith*.
The Prophet (ﷺ) was asked: We use *khamr* (alcohol) as a medicament. His answer was: "It is no cure. It is itself a disease"[115].
Abdullah bin Masoud narrated: The Prophet (ﷺ) said: " Allah never made cure in things He prohibited"[116].
Abu Hurairah narrated that the Prophet (ﷺ) said: " That who tries to get cure through drinking *khamr* (alcohol), Allah will not cure his ailment"[117].
A *Sahabi* (companion) asked the Prophet (ﷺ) about wine as a medicament. The prophet (ﷺ) said: "Never. It is a disease and not a cure"[118].
In another more comprehensive *Hadith*, the Prophet (ﷺ) said: "Allah has sent down both the disease and the cure, and He has appointed a cure for every ailment. So get your cure through lawful medications, and never use prohibited things"[119].

Concluding Remarks

For the past 14 centuries, Muslim communities all over the world are either free or are the least affected by alcohol and its consequences. The vast majority of Muslims, from different cultures, ethnicities and geographic locations, kept their abstinence throughout the ages, together with dominant and deep-rooted intellectual, social, moral and ethical conviction.
Arnold Toynbee in his book "Civilization on Trial" said: "Islamic spirit… may be expected to manifest itself in … a liberation from alcohol which was inspired by religious conviction and which was therefore able to accomplish what could never be enforced by the external sanction of an alien law….Here, then, in the foreground of the future, we can remark …valuable influences which Islam may exert upon the cosmopolitan proletariat of a Western society that has cast its net round the world"[120].
Even in the U.S.A where proscription of alcohol failed (1919-1933), Islam has proved capable of solving this intricate problem. James Baldwin, a well-known Afro-American writer, who himself converted to Islam, wrote in his book: "The Fire Next Time", the following passage to his fellow American blacks[120]:
"I remembered my buddies of years ago, in the hallways with their wine and their whisky and their tears, in hallways still frozen on the needle, and my brother saying to me once, if Harlem didn't have

so many churches and junkies, there would be blood flowing in the streets".

"And now suddenly people who have never before been able to hear this message (of Islam) hear it, and believe it, and are changed ….(Islam) has been able to do what generations of welfare workers, committees, resolutions, reports, housing projects and playgrounds have failed to do: to heal and redeem drunkards and junkies, to convert people who have come out of prisons and keep them out, to make men chaste and women virtuous, and to invest both male and female with pride and serenity that hang about them like unfailing light"[121].

The miracle had taken place and these harassed drunkards and junkies were completely changed by Islamic teachings.

The emphasis which has so far been laid on tackling the problem of alcoholism on a personal level should change, as it has proved fruitless. The WHO report on the problem of alcoholism emphasized the failure of the present day approach of Western nations towards the problem of alcoholism. The following passage is quoted from this Technical Report [122]:

"Problems related to alcohol and particularly to its excessive consumption, rank among the world's major public health problems and constitute serious hazards for human health, welfare, and life".

"With problems of such magnitude, it is clear that even the most effective treatment programs for alcohol dependence cannot possibly constitute an adequate response. Moreover, treatment approaches have had only limited success in this field, and there is much concern at present about their cost effectiveness even when they are successful. In the light of all these considerations, it appears inescapable that the major focus of efforts to reduce alcohol-related problems must be on the area of primary prevention".

Islam provides such a successful measure. Humanity has to study seriously Islam and how did it manage to solve such a difficult and intricate problem both in the past and present.

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TOBACCO DEPENDENCE: THE WHOLE STORY

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Abstract:

The use of tobacco dates back to hundreds of years and is considered highly addictive. Nicotine is the predominant substance that causes tobacco dependence. Nicotine exerts its effect via similar neurological pathways used by other recreational drugs resulting in high level of dependence. All forms of exposure to tobacco including active use of tobacco, second-hand as well as third-hand exposure to tobacco smoke are known to be harmful. Tobacco is the only risk factor that is common between all non-communicable diseases including cardiovascular diseases, respiratory illnesses, cancer and diabetes mellitus. International consensus regarding the harms of tobacco is now evident. Many international organizations are mapping the way for the end of tobacco. Until then, aggressive treatment for those subjects interested in quitting must be provided in order to prevent a significant surge in non-communicable diseases especially in low income countries. Tobacco dependence is a chronic relapsing disorder that requires a multidisciplinary approach using psychological and pharmacological techniques.

Keywords: Tobacco dependence, tobacco harms, tobacco control, tobacco dependence treatment.

The history of tobacco[1,2]:

Tobacco is a naturally deadly plant that initially was grown only in North and South America. It belongs to the same family as potatoes and pepper. Following the discovery of America, sailors brought tobacco with them to Europe and then to the rest of the world. In the 1500's it was thought that tobacco can cure all diseases and was promoted as such by physicians and recommended to be taken daily. Later in the 1600's, tobacco became so popular and was used instead of money to complete business transactions. During those times the first hints that tobacco might be harmful began to surface.

In 1610 the first evidence that tobacco might be addictive and that smokers might be interested in quitting was concluded by a statement made by Sir Francis Bacon who noted that " trying to quit the bad habit was really hard". By mid-1600's it became morally unacceptable to smoke in certain states of the United States of America such as Massachusetts due to the fact the tobacco may be harmful. In 1760, Pierre Lorillard established a company in New York City to process tobacco, cigars, and snuff and became the oldest tobacco company. The tobacco industry became well established since then and played a role in financing governmental actions including military operations. Following that and in 1826 specifically, nicotine was isolated in its pure format and was declared few years later poisonous and that it can be used as an insecticide.

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In 1836 the first statement was made regarding the lethal effects of nicotine as a chemical that might be able to kill a human being. Cigarettes were first manufactured in 1847. By the year 1900 cigarettes be-came the major tobacco product made and sold. In 1901 for example, 3.5 billion cigarettes and 6 billion cigars were sold. Cigarettes continued to spread after that to a point that they were part of soldiers' rations during World War II. Finally, in 1964 the first USA Surgeon General report came out carrying the title "Smoking and Health" focusing on health effects of tobacco and providing the first document for governments to start regulating and controlling the spread of tobacco. Later, more Surgeon General reports began to shed the light on the harmful effects of tobacco till the year 1982 when second hand smoke exposure was declared a risk factor for the development of lung cancer resulting in the gradual banning on smoking in public places. Throughout the years, all efforts by governments to curb the spread of tobacco were constantly faced by counter novel and misleading tactics by the tobacco industry that encouraged the use of tobacco through marketing to teenagers and females using products designed specifically to attract such consumers. In addition, they started diversifying their products to include food and clothing. Lately, the tobacco industry moved into a new line of production, electronic cigarettes in order to face global efforts aiming at putting an end to this industry and reducing tobacco prevalence to less than 5% by 2040. Worldwide, 3.8 million hectares of agricultural land are used in tobacco agriculture distributed over 124 countries. China grows 43% of the world's tobacco cigarettes accounting for 92% of the value of all tobacco products sold globally.

Forms of tobacco
And tobacco smoke exposure:

Tobacco is used either by burning dry or processed leaves of the tobacco plant and inhaling the smoke or as smokeless tobacco which is usually consumed either orally or nasally, without burning or combustion. Both forms of tobacco consumption increase the risk of cancer and lead to nicotine addiction. Combustion, however, uses heat to create new chemicals that are not found in unburned tobacco such as carbon monoxide, tobacco-specific nitrosamines (TSNAs) and benzopyrene, and allows them to be absorbed through the lungs[1].

Manufactured cigarettes are the most commonly consumed tobacco products worldwide. They consist of tobacco that is processed with chemicals and flavors such as menthol and rolled into a paper-wrapped cylinder. As it burns from one end, smoke is inhaled from the other end through a cellulose acetate filter. Cigars are made of air-cured and fermented tobacco rolled in tobacco-leaf wrappers. This process of aging and fermentation results in high concentrations of carcinogenic compounds inhaled by smokers that are higher than in cigarettes. Waterpipe, also known as shisha, hookah, narghile, or hubble-bubble constitutes now a world-wide epidemic[3]. The additional use of charcoal in waterpipe smoking to indirectly heat and burn tobacco represents a significant added risk that contributes to the carcinogenicity of this method of smoking. When smoking waterpipe, smoke is drawn through the water to be partially cooled and inhaled into the lungs through a hose. Flavored tobacco maybe used too. Kreteks, another form of smoking tobacco, are usually clove-flavored and contain eugenol which has an anesthetic effect[4]. Flavoring in general usually allows for deeper and thus more harmful smoke inhalation. This form of smoking tobacco is commonly used in countries in Southeast Asia such as Indonesia. Contrary to the belief of the general public, roll-your-own cigarettes which are hand-filled by the smoker using cigarette paper and fine-cut loose tobacco contain high concentrations of tobacco particulates, tar, nicotine, and

TSNAs resulting in increased risk for developing cancers of the head and neck, lungs, and esophagus. It is most prevalent in Europe and New Zealand. Bidis on the other hand, consist of a small amount of crushed tobacco, hand-wrapped in dried temburni or tendu leaves, and tied with string. Bidis deliver more tar and carbon monoxide than manufactured cigarettes due to the fact that users need to puff harder to keep them lit. Bidis are most prevalent in South Asia and India. Pipes are made of briar, slate, clay, or other substances. After placing tobacco in a special bowl, it is burned and smoke is inhaled through the stem. Pipes are prevalent worldwide. Sticks are made from sun-cured tobacco and wrapped in cigarette paper.

Smokeless tobacco forms include chewing tobacco, moist tobacco and dissolvable tobacco. All these forms deliver nicotine through the buccal mucous membranes. Dry snuff is inhaled through the nose or taken orally.

Second-hand smoking (passive smoking) is another form of exposure to tobacco smoke. This type of exposure does not only contribute to the initiation of smoking, development of tobacco dependence[5] and significant irritation to those who are exposed to it, but it also contributes to significant mortality and morbidity in the community[6]. Passive smoking can significantly elevate the level of carbon monoxide, increase risk of lung cancer, coronary artery disease and sudden cardiac arrests in those expose to it[7]. In the 1960s the adverse effects of maternal smoking on the developing fetus and on children exposed to second hand smoke in smoking households were reported[8,9]. Those fetuses who were exposed to environmental tobacco smoke suffered from decreased lung function[10]. All that led to a conclusion by the US Department of Health and Human Services (USDHHS) in 1986, that "Simple separation of smokers and non-smokers within the same air space may reduce, but does not eliminate, exposure of non-smokers to environmental tobacco smoke". Such conclusion was then the basis for strict implementation of banning the exposure to second hand smoke in public places[11].Another form of exposure to tobacco smoke is the newly described third-hand smoking. This refers to the chemicals and products that precipitate on the surfaces after second hand smoke is cleared[12].

Third-hand smoke contaminate surfaces, furniture and clothing with carcinogenic chemicals such as radioactive polonium-210 and tobacco-specific nitrosamines[13,14].

These chemical could potentially pose great deal of danger to infants and young children who are more likely to crawl and eat with their hands without washing them. Research is underway to expose the real health risks associated with third-hand smoking[15].

Epidemiology, expected health tolls and finance:

Despite efforts to control the spread of tobacco, currently 20% of the world's population, that is approximately one billion, are active smokers. Eighty percent of smokers are males. Such large number of smokers is not only causing a rise in morbidity and mortality due to various diseases that result directly from smoking, but also contributing significantly to death resulting from second hand smoking especially in women and children While current death toll from second hand smoking is estimated to be at 600,000 individuals annually[1], it is also estimated that 75% of these deaths are among women and children. More than half the countries of the world have a female smoking prevalence rate of less than 10%. Smoking rates among boys and girls are more comparable and differ by less than five percentage points in almost half of the world's countries. Smokers consumed nearly 5.9 trillion cigarettes in 2009. Tobacco taxation is considered a significant source of revenue income for most countries. Despite the fact that governments collect nearly $133

billion in tobacco tax revenues each year, they spend less than $1 billion on tobacco control. Further increase in revenue is expected if illicit trade were to be eliminated with reports reaching up to USD 31.3 billion in immediate gains upon the elimination of such trade[16]. The World Health Organization (WHO) recommends that at least 70% of the retail price of tobacco products come from excise taxes. At least 86% of WHO member states imposed a tobacco excise tax, and at least 14% use a portion of tobacco tax revenue for health purposes. Some countries are now envisioning an end game for tobacco, with prevalence targets of under 5%. The WHO Frame Work Convention on Tobacco Control (FCTC) treaty covers 87.4% of the world population. Approximately 3.8 billion people are covered by at least one of the six MPOWER strategies that will be discussed below at the highest level of achievement. The number of people protected by comprehensive smoke-free laws has doubled from 2008 to 2010[1].

Tobacco initiation and dependence:

Tobacco initiation typically occurs during childhood or adolescence. It is an acquired social behavior[16]. Social learning occurs in children as they adopt behaviors in part through observation of parents, peers, and other role models. During the teenage years, peer pressure becomes the dominant social influence[16]. Media plays an important role in promoting and normalizing the appearance and the behavior of smokers through projecting famous figures smoking in public. Initially, initiation is mostly voluntary, however, upon the development of addiction, self-control can become seriously difficult and impaired. The cycle of nicotine addiction starts when nicotine containing products are used for pleasure and for enhancing mood and perform-ance. As tolerance and physical dependence develop over time continuous use of nicotine products is used to self-medicate withdrawal symptoms in addition to the above sought after effects[17]. Tobacco dependence and withdrawal syndromes have been classified as substance abuse disorders under WHO International Statistical Classification of Diseases and Related Health Problems (ICD 10)[18], an important step in justifying and encouraging governments to offer treatment to smokers. In general, dependence develops when the neurons adapt to the repeated drug exposure and only function normally in the presence of the drug[19]. Tobacco dependence is driven by the highly addictive nature of nicotine. As a psychoactive drug, nicotine induces euphoria, serves as a reinforcer of its use and acts both as a stimulant and a depressant. Strong and overwhelming withdrawal symptoms develop in its absence. Tobacco dependence fulfils all the criteria for substance abuse as outlined in the "Diagnostic and Statistical Manual of Mental Disorders, 4th Edition"[20]. It is ranked third after heroin and cocaine and higher than alcohol and cannabis in its ability to cause dependence[21]. The combination of its highly addictive property as well as the severe adverse effects that it inflicts on its active users as well as the severe detrimental health effects second and third hand smoking have on the population, caused religious Islamic leaders in many Muslim countries such as Jordan, Egypt, many countries in Gulf Cooperation Council as well as Islamic countries in southeast Asia to issue a *Fatwa* that using tobacco products is forbidden according to Islamic rules (*Haram*)[22-25]. It is important to note that nicotine mechanism of action and the targeted areas in the brain are similar to other recreational drugs such as cocaine. The principle mechanism of action is thought to be targeting areas in the brain such as the nucleus accumbens and increasing levels of dopamine which in return result in the desirable effects and inhibit the withdrawal symptoms that may result from abstinence from the drug[26]. Nicotine reaches the brain through either the lungs when smoked or mucous membranes when smokeless tobacco forms are used. Although the levels of many

substances are reported to increase in the brain upon exposure to tobacco smoking such as serotonin and endogenous opiates, dopamine remains the main chemical involved in the process of positive reinforcing aspects of nicotine addiction and the desired feelings sought by those who use tobacco. As nicotine reaches the brain it binds to a special receptor known as $\alpha_4\beta_2$ nicotinic acetylcholine receptor (nAChR)located in the ventral tegmental region which results in the release of dopamine[27,28]. As nicotine binds to $\alpha_4\beta_2$ nicotinic acetylcholine receptor (nAChR) occupancy on glutamatergic terminals, glutamate, an excitatory neurotransmitter, is released which results in an increased release of dopamine in the nucleus accumbens and the frontal cortex[29,30]. In addition Nicotine binds to $\alpha_4\beta_2$ nicotinic acetylcholine receptor (nAChR) occupancy on gamma-aminobutyric acid (GABA)-releasing terminals[31].

This binding causes an increase in the levels of GABA, an inhibitory neurotransmitter.

Furthermore, nicotine binds to a specific receptor in regions of the brain such as the nucleus accumbens and result in the production of dopamine[32].

These chain reactions start in 10-20 seconds after inhalation mainly due to the large surface area in the lung available for absorption[33]. In general, nicotine dependence follows a similar pattern that occurs with other substances and that is characterized by both the persistence of a drug-seeking behavior and the emergence of withdrawal symptoms upon the abrupt cessation of nicotine administration[32]. In the end, chronic nicotine exposure result in a neurobiologic adaptation and desensitization of the receptors with the need to increase those receptors through further increase in the quantities of tobacco consumed. However, not all forms of nicotine delivery pose an equal risk in establishing or maintaining nicotine addiction. Nicotine replacement therapy used in treating tobacco dependence for example, is less likely to cause dependence and easier to discontinue once the treatment goals are achieved. Although it has been always emphasized that nicotine is the most important chemical in cigarettes that contributes to its highly addictive properties, other compounds such as acetaldehyde, ammonia compounds, and menthol also make cigarettes more addictive through increasing free-base nicotine, making it easier to produce larger puffs (filter-tip ventilation) and other factors that reduce the concerns for smokers and increase the attractiveness of the products[34].

Nicotine is metabolized primarily by the liver enzymes CYP2A6, UDP-glucuronosyltransfease (UGT), and flavin-containing monooxygenase (FMO). Many factors influence the metabolism of nicotine such as genetic factors, diet, age, sex, use of estrogen-containing hormone preparations, pregnancy, kidney disease, other medications, and smoking itself[35]. Nicotine is further metaboli-zed to cotinine, which may be measured in blood, urine, saliva, hair, or nails. Cotinine levels are used to distinguish smokers from non-smokers. Levels exceeding 3 ng/ml indicate active smoking status in countries with low exposure to second hand tobacco smoke.

Second hand smoke exposure is believed to play an important role in the occupancy of $\alpha_4\beta_2$ nicotinic acetylcholine receptor. Recent evidence[36] utilizing Positron emission tomography scanning measured whether moderate second hand smoke (SHS) exposure results in brain $\alpha_4\beta_2$* nicotinic acetylcholine receptor occupancy in smokers and non-smokers. The study concluded that nicotine from SHS exposure results in substantial brain $\alpha_4\beta_2$* nAChR occupancy in smokers and non-smokers. In addition, the finding suggested that such occupancy would be sufficient to deliver a priming dose of nicotine to the brain that contributes to continued cigarette use in smokers. It was also important to note that while moderate exposure tested in this study was sufficient to cause an increase in plasma nicotine concentration of approximately 0.2

ng/mL and a mean 19% brain $\alpha_4\beta_2$* nAChR occupancy in young adults, heavy SHS exposure (in enclosed rooms with multiple smokers) demonstrated increases in plasma nicotine levels greater than 2 ng/mL and greater than 70% $\alpha_4\beta_2$* nAChR occupancy[37]. These alarming findings have greater implications in countries where second hand exposure control are not implemented resulting in significant exposure in nonsmokers especially prepubescent children and infants who have a 1-minute ventilation per kilogram of bodyweight that is approximately 2 to 3 times higher than adults. Because of that increases in plasma nicotine concentration and occupancy of brain $\alpha_4\beta_2$* nAChRs from similar levels of SHS exposure may be even greater for children than for adults, thus setting them up to be dependent on nicotine during early childhood. Such studies that link SHS exposure and craving in smokers as well as priming nonsmokers especially children is highly relevant to public policy and laws that aim at limiting SHS exposure in closed public places[38,39].

Health effects of tobacco:

Every year more than 5 million people die from tobacco-related diseases. By the year 2030, this number is expected to near 10 million[40]. With high income countries making efforts to limit the spread of tobacco in their areas and consequently succeeding in decreasing the prevalence of smoking, it is expected that more than 80% of these tobacco-related deaths will occur in low income countries[1]. Tobacco is currently the most easily preventable cause of death and is the only risk factor that is common among all non-communicable diseases (NCDs), namely cardiovascular disease, cancer, respiratory illnesses and diabetes mellitus. However, the World Economic Forum estimates that the cost of these diseases in low income countries is expected to exceed USD 20 trillion over the next 15 years, thus exerting enormous pressures on countries with limited resources to enforce their tobacco control regulations[41]. NCDs related deaths are expected to increase by more than 25% in low income countries over the next 15 years[42]. Cardiovascular diseases (CVDs) occupy the number one spot among all NCDs that cause death in humans. The relation between tobacco use and cardiovascular diseases was recognized in the first US surgeon general report in 1964[43]. Cigarette smoking accelerates atherosclerosis and contributes to cardiovascular diseases through many mechanisms that precipitate thrombosis, hemorrhage, or vasoconstriction resulting in the end in vascular occlusion and ischemia. Cigarette smoking affects blood lipids profile and hemostasis. Smokers have lower concentrations of high density lipoproteins, a risk factor for coronary artery diseases. Carbon monoxide resulting from the combustion of tobacco is significantly elevated in the blood of smokers. It is known to have more than 200 times higher affinity for hemoglobin than that of oxygen, thus directly reducing oxygen delivery to the tissues. Overall, smoking causes CVD through multiple mechanisms including: endothelial dysfunction, increasing prothrombotic effect, enhanced platelet activation in response to different stimuli, inflammation through activation of NF-κB pathway[44], altered lipid metabolism, and increased demand for myocardial oxygen. All these proposed mechanisms would result in a decreased supply of myocardial blood and oxygen either directly through narrowing of the lumen (due to atherogenesis plaque formation and vasoconstriction) or through the increased demand (due to nicotine mediated sympathetic stimulation and increased heart rate, blood pressure and myocardial contractility). The 2010 Surgeon General's report[45] reported an increase in coronary heart disease risk with more cigarettes smoked per day only up to about 25 cigarettes. Others showed such relation to continue up to 40 cigarettes per

day[46]. These effects are not exclusive for active tobacco smoking, In fact, second- hand smoke is also associated with chronic inflammation and a non-linear dose-response relationship between such exposure and cardiovascular effects[47]. Jefferis et al showed that serum cotinine in nonsmokers was positively associated with white blood cell count and with levels of C-reactive protein (CRP), Interleukin-6 (IL-6), fibrinogen, and matrix metalloproteinase 9. The CRP levels of nonsmokers were about one-third lower than the levels of active smokers, but CRP levels increased more sharply among nonsmokers at higher exposure levels[48]. These findings emphasize again the benefits of banning smoking in public places. In addition to coronary heart disease, a growing body of evidence indicates that smoking causes sudden death[49], aortic aneurysms[50], and peripheral vascular disease[51,52]. There is a dose-response relationship between smoking and cerebro-vascular disease[53,54] and a new strong evidence demonstrates a causal relationship between exposure to second hand smoke and increased risk of stroke up to 30%[55,56].

Smoking and cancer:

It has been established that smoking increases the risk for certain cancers such as those of the head and neck, lung, urinary bladder and leukemia. Tobacco smoke contains more than 7,000 chemicals, and at least 69 of these can cause cancer[57].

Examples of these chemicals include aromatic amines, polycyclic aromatic hydrocarbons (PAHs), tobacco-specific nitrosamines; formaldehyde, acetaldehyde, 1,3-butadiene, and benzene. When inhaled, these substances cause DNA damage, inflammation and mutations in oncogenes and tumor suppressor genes leading to loss of normal growth controlled mechanisms[54]. Recently, new evidence concluded a causal relationship between smoking and colon and liver cancers[33]. In addition, evidence is suggestive that both active smoking and exposure to second-hand tobacco smoke might predispose to breast cancer. In general, smoking has been associated with decreased survival in patients with a variety of cancers such as those of the head and neck, breast, colon, rectum, prostate and others[58]. This negative effect on survival is multifactorial. For example, smoking has been associated with poor nutrition, co-morbidities, impaired immune function and accelerated carcinogenesis and disease progression[59,60]. Second, patients who continue to smoke while they are receiving chemo and radiotherapy are at risk of receiving suboptimal therapy for their cancer[61] and have a higher chance of developing adverse events related to these modalities of treatment[62,63]. Third, the development of a second primary cancer and the negative impact of smoking on the life of cancer survivors are other significant risks that cancer patients who continue to smoke must deal with[64,65].

Smoking and pulmonary diseases:

Smoking is known to cause and affect many respiratory illnesses such as Chronic Obstructive Pulmonary Disease (COPD), asthma, tuberculosis and pulmonary fibrosis. Smoking causes all elements of the COPD phenotypes including emphysema and damage to the airways of the lung. Smoke recruits inflammatory cells such as macrophages and liberates proteases from viable lung cells which in return disrupt the function of protease inhibitors like α1-antitrypsin. This results in facilitating the effect of proteases and the destruction of extracellular matrix. Evidence is suggestive that women who smoke are more susceptible to develop severe COPD at younger ages[33].

Similarly, asthma is impacted by smoking through many mechanisms. Chronic airway inflammation, impaired mucociliary clearance, impaired growth of the lungs during childhood, and increased bronchial hyper-responsiveness are all enhanced by smok-ing[54,66]. Immunologic mechanisms include effects on T cell function and a higher ratio of Th2/Th1,

increased production of IgE, and greater allergic sensitization. Cigarette smoke may increase neurogenic inflammation in the bronchial airway[67,68] resulting in further inflammation of the airway.

In summary, the evidence is suggestive of a causal relationship between active smoking and the incidence of asthma in adults as well as exacerbation of asthma among children, adolescents, and adults. Serious lung infections can also be promoted by smoking. For example, the risk of mycobacterium tuberculosis disease, mortality from the disease and disease recurrence are all higher in smokers[69]. Lastly, some evidence suggests a possible relationship between cigarette smoking and idiopathic pulmonary fibrosis[70].

Cigarette smoking and diabetes mellitus: The risk of developing diabetes is 30–40% higher for active smokers than nonsmokers[42]. There is a positive dose-response relationship between the number of cigarettes smoked and the risk of developing diabetes. Furthermore, smoking aggravates insulin resistance in persons with diabetes resulting in suboptimal control of the blood glucose[42]. Recently, smoking was implicated in the pathogenesis of rheumatoid arthritis. The mechanism appears to involve both the effects of oxidizing chemicals in the smoke and the sympathomimetic effects of nicotine[42]. The incidence of neovascular and atrophic forms of age-related macular degeneration are also increased by smoking. Multiple pathways are likely responsible for the degenerative changes in the macula. In genetically susceptible persons, smoking causes changes in retinal pigment epithelium, Bruch's membrane, and choroidal endothelium and generate a local inflammatory response[71]. Oxidative stress and vascular insufficiency are proposed mechanisms for smoking-related damage to retinal structures[72,73].

Additional evidence is sufficiently conclusive that smoking is associated with many other conditions such as erectile dysfunction, ectopic pregnancy[74] and contributes significantly to infertility in both males and females. Maternal active smoking might be also linked to spontaneous abortion and fetal anomalies such as orofacial clefts, clubfoot, gastroschisis, and atrial septal heart defects[42].

Tobacco control strategies:

The WHO through its international treaty the "Frame Work Convention on Tobacco Control (FCTC)" lists six evidence-based strategies that aim to address the various articles in this treaty including policy, regulatory and economic interventions[75]. Summarized in the word MPOWER, the components stand for the following:

Monitor tobacco use and prevention policies:
National data are collected periodically to track tobacco use and consumption. The Global Adult Tobacco and the Global Youth Tobacco surveys are examples. Unfortunately, many countries in the world are not capable of conducting these surveys due to their high cost.

Protect people from tobacco smoke:
Implementing bans on smoking in public places is the cornerstone of this strategy. While this has been a very successful strategy in high-income countries to reduce the spread and harms of tobacco, it has been very challenging to implement in low income countries due to the significant lack of governmental commitment and a strong tobacco lobby that has been transferring its markets to those vulnerable regions.

Offer help to quit tobacco use:
This strategy will be discussed in details in the following section.

Warn about the dangers of tobacco:
Mass media campaigns as well as the use of pictorial warnings are known successful methods to attract public attention, deliver necessary health messages and drive up the intention to quit among smokers. Pictorial warnings on cigarette packs are usually graphic and occupy at least 50% of the surface

area of the cigarette pack. In the Eastern Mediterranean Region (EMR), Jordan, Egypt and Iran introduced those warnings and in the process of upgrading them.

Unfortunately**,** Enforcement is generally lacking in Eastern Mediterranean Region, despite evidence that such intervention would help in reducing the prevalence of smoking, tobacco consumption as well as burden and death from various diseases[76,77].

Raise taxes on tobacco:

This strategy is considered by far the most effective strategy for tobacco control. Typically, national governments would impose high taxes on tobacco products in order to increase the price and making cigarettes less accessible to the public especially children. Revenues from these taxes are then invested in strengthening tobacco control measures, improving customs and border controls, and curbing tobacco illicit trade. Furthermore, such revenues can be invested in building health care systems and train health care providers. Currently, worldwide variation in successful implementation of this strategy exists. High income countries took steady steps in implementing this strategy while low income countries continue to fall for the tobacco industry promises of guaranteed short term profits and discouraged from taking aggressive moves by the misleading evidence provided by the tobacco industry to governments that such profits might be hindered should higher taxes were implemented due to the increase in smuggled tobacco, an action typically promoted and supported by the tobacco industry.

Tobacco dependence treatment and the gains of quitting:

The benefits of quitting occur simultaneously with the cessation of smoking. For example, normalization of the heart rate, blood pressure and decrease in coughing and production of phlegm occurs within hours to days from quitting[78].

In the long-term, quitting tobacco reduces premature death by 90% for those who quit before the age of 30 and by 50% for those who quit before the age of 50[78]. In five years, the risk of stroke falls to that of a non-smoker, and the risk of head, neck and bladder cancers is reduced by half[79]. Better control of respiratory diseases like asthma and COPD including symptoms, exacerbations of the disease, hospital admissions and finally mortality form COPD has been clearly demonstrated in the literature[80]. However, despite these documented short and long-term benefits of quitting smoking, and despite listing *O – offer help to quit* as one of the recommended WHO strategies for tobacco control, tobacco dependence treatment (TDT) services continue to be scarce and inconsistent across the world. Many factors contribute to this shortage of TDT, including the lack of training opportunities for health care providers in basic skills needed to deliver TDT services. Tobacco dependence treatment is an integral component of any comprehensive tobacco control effort. Comprehensive TDT services include the techniques of brief advice, motivational interviewing and counseling, establishing effective quit lines, and availing low-cost pharmacotherapy. In 1999, the World Bank, building on data published by Peto et al. estimated that if adult consumption of tobacco is halved by 2020 the world can prevent about 200 million deaths by 2050. In comparison, the short-term effect on mortality of halving the number of young people who take up smoking was negligible. Accordingly, the report urged governments seeking health and economic gain to encourage smokers to quit[81].

Likewise, WHO -through Article 14 of the FCTC- mandates parties to design and implement effective programs to promote cessation of tobacco use and provide adequate treatment for tobacco dependence[82]. The WHO recommends inclusion of cessation advice in

primary healthcare services, establishing accessible and free quit lines, and availing low-cost pharmacotherapy[83]. Inclusion of cessation advice in primary healthcare settings proves to be a low-cost strategy where the major investment is in training of providers and in providing informational materials to tobacco users[83].

Pharmacotherapy, while more expensive than offering cessation advice, has been shown to double or triple quit rates[83]. Overall, TDT interventions are extremely cost effective when compared to treatment of other chronic diseases such as hypertension. While a specialist may average two hours for treatment of one tobacco dependence case, treatment of hypertension over the lifetime of the patient consumes more time[84]. In general the cost-effectiveness of TDT exceeds that of other commonly provided clinical preventive services, including Pap tests, mammography, colon cancer screening, treatment of mild to moderate hypertension, and treatment of high levels of serum cholesterol[85].

The American College of Chest Physicians recommends dealing with tobacco dependence as a chronic relapsing condition similar to asthma. Various forms of treatments are used in a controller and reliever fashion[86].

In most subjects combination pharmacotherapy is used for better outcome. A long acting nicotine replacement therapy (NRT) such as the nicotine patch is usually combined with as needed doses of a short acting NRT such as nicotine gum, lozenges, inhaler or nasal spray. All NRT doses are titrated to control subjects' withdrawal and craving symptoms. Bupropion, an antidepressant and/or varenicline ($\alpha_4\beta_2$ nicotinic acetylcholine receptor partial agonist) are combined with NRT for better control of symptoms and enhanced cessation rates[87]. In both choices, doses are titrated up over few days to avoid side effects. Treatment is usually continued for at least three months or as long as it is needed. Safety data are now available for the chronic use of all these medications. Relapse is very common in subjects trying to quit smoking and must be addressed early on in the course of treatment. Behavioral and cognitive techniques are key in TDT and in preventing relapse.

Many challenges face establishing effective tobacco dependence treatment programs. Tobacco education and training in healthcare disciplines continues to be lacking. A 2009 survey of 171 countries indicated that only 27% of medical schools taught a specific module on tobacco[88].

However, progress is being made via international collaborations through training health care providers (HCPs) on delivering effective TDT. The East Mediterranean Region (EMR) countries continue to face other challenges that hinder service expansion. King Hussein Cancer Center (KHCC), a comprehensive cancer care facility in Jordan that has been offering TDT services to cancer patients and the general public since 2008, recognized early on that such gaps in capacity and competence limit the reach of services and patients' access to help. Realizing the importance of training HCPs in evidence-based treatment, KHCC started in 2011 to offer TDT training to countries of the EMR through collaboration with Global Bridges; an international healthcare alliance for tobacco dependence treatment that was founded by Mayo Clinic, the American Cancer Society, and the University of Arizona. Global Bridges seeks to create opportunities to share treatment and advocacy expertise and to provide state-of-the-art training to help countries fulfill FCTC's Article 14. While other organizations represent Global Bridges throughout Latin America, Africa, and Europe, KHCC is the regional host and partner for Global Bridges in the EMR. To date, KHCC has trained over 1500 HCPs and advocates from EMR on tobacco control and TDT through more than 20 workshops and conferences spanning the region from Morocco to United Arab Emirates. Political commitment to tobacco

control is not uniform across the region, and the tobacco industry (TI) has been gaining traction in some countries. As developed nations tighten their regulations on the tobacco industry, the developing nations of the EMR - with their relaxed tobacco control regulations- present themselves as a safe haven to the TI. While tobacco companies are state-owned in eight EMR countries, multi-nationals are establishing their operations in other countries such as in Jordan[89].

Another challenge that may hinder expansion of TDT services in the region is tobacco use among physicians and other healthcare workers. The prevalence of ever smoking cigarettes among medical students in 2010 in the region ranged between 24% and 42%[90]. This undermines the role that healthcare providers should play in reducing the social acceptability of tobacco use and their credibility in promoting TDT services[91]. It is thus imperative that teaching and training programs for HCPs address tobacco control and TDT early on, and that special attention is given to helping these professionals quit tobacco use as an initial step. Furthermore, the lack of insurance coverage by national or private health care plans as well as the inconsistency in the availability of necessary pharmacological drugs used in TDT and the prices of these drugs are all considered real obstacles facing smokers who are trying to quit.

In conclusion, tobacco is highly addictive and poses great danger to those who consume it, and societies at large.

Dependence and harms of tobacco as well as the benefits of quitting are clearly documented in the literature. International strategies for tobacco control must be implemented globally in an effort to lower the prevalence by the year 2040 to less than 5% worldwide.

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OPIATE ADDICTION

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Abstract:

Drug addiction is rapidly increasing in most parts of the world resulting in escalating healthcare cost, fatalities and serious negative familial and social consequences. The opiate addiction is the most serious form of drug addiction and it is extremely difficult to treat and keep the patient sober.

The article covers the historical perspective, genetic and environmental factors contributing to the addiction behavior and the brain mechanisms for addiction. It will discuss the diagnostic criteria and the current methods of treatment available including use of opiate agonists, opiate partial agonists, opiate antagonists and psychosocial treatments.

The article also includes a brief discussion about the current situation related to drug use in the Muslim World and proposes some guidelines for treatment and control of the spread of drug use in the Muslim World.

Keywords: Drug addiction, Opiate use disorders, neurologic mechanisms, causes of addiction, treatment of addiction, history, Islamic perspective.

Introduction:

The death of Philip Seymour Hoffman, the brilliant Oscar winning actor, created headline news about mortality due to overdosing on opiates. One of the statements he made created this renewed interest in this subject when he stated, "if one of us dies of an overdose probably 10 people who were about to won't"[1]. Opiate dependence is a significant worldwide public health issue. Globally, between 24 and 35 million adults between the ages 15 and 64 years used an illicit opiate in 2010[2]. Alcohol and illicit drugs are harming millions of people in many countries around the world. Alcohol and drug use account for 5.4% of the world's annual disease burden. In some Eastern European countries, 16% of the population suffers from "Alcohol use disorder"[3]. Some of the most common drugs of abuse are opiates and opioids.

Opiates are derived from the poppy seeds and is known as heroin. Opioids are semi synthetic products such as Morphine, Oxycodone, Percocet, Tylox, Oxycontin, Hydrocodone, Vicodin, Tramadol, Ultram, Pentazocine, Talwin and Fentanyl. The heroin is used intravenously, as a smoke or as an inhalant and all opioids are used orally.

According to the USA Centers for Disease Control and Prevention (CDC), 12 million Americans used opiates in 2010 and that every day 100 people die from drug overdoses, 75% of which are caused by prescription opiates. The rate has tripled in the last two decades.

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There have been more than 17 deaths linked to the possible use of Fentanyl- contaminated heroin in Pittsburgh, Pennsylvania alone from January 24, till March 23, 2014. In the first two weeks of January, there were 22 such deaths reported in the state of Rhode Island due to heroin overdose. Heroin is always an extremely intoxicating drug of abuse with a wide array of risks including overdose and increased exposure to Hepatitis C, HIV/AIDS and other infectious diseases. It often contains other ingredients which render it potentially more harmful or in some cases deadly[4].

Opiates become more dangerous when mixed with benzodiazepines and can be fatal. In 2009, slightly over 120 million visits were made to the emergency departments in general hospitals in the United States and at least 4.5 million of these visits were drug-related. Drug-related emergency department visits have increased by over 80 percent since 2004. This increase primarily reflects greater numbers of medical emergencies associated with adverse reactions, accidental drug ingestions, and misuse or abuse of prescription drugs and over-the-counter medications [5].

Countries around the world spend billions of dollars fighting drugs and treating and rehabilitating those addicted. In addition to personal and social problems, alcohol, drug use and other addictions lead to criminal behavior. Hundreds of thousands of individuals are arrested for possession and /or sales of drugs, or for committing crime to obtain them. Drug intoxication results in traffic accidents which may cause fatalities. One-third of AIDS cases occur in IV drug users and children are born with AIDS to the female drug users.

What is Addiction?

Addiction is an obsessive and compulsive behavior which includes taking drugs (alcohol, opiates and other drugs), engaging in gambling, computers and being pre-occupied with persistent sexual thoughts and pornography inspite of negative consequences, which influence health, relationships and work. In other words, addiction has many forms; some of them are related to substances while the others are related to psychological dependence on behaviors.

The addiction alters the brain's function and structures affecting mood, perception and consciousness leading to physical, psychological and psycho-social problems.

Addiction is a primary, chronic disease of brain's reward, motivation, memory and related circuitry. Addiction affects neurotrans-mission and interactions within reward structures of the brain, including the nucleus accumbens, anterior cingulate cortex, basal forebrain and amygdala, such that motivational hierarchies are altered and addictive behaviors, which may or may not include alcohol and other drug use, supplant healthy, self-care related behaviors.

Addiction also affects neurotransmission and interactions between cortical and hippocampal circuits and brain reward structures, such that the memory of previous exposures to rewards (such as food, sex, alcohol and other drugs) leads to biological and behavioral responses to external cues, in turn triggering craving and/or engagement in addictive behaviors[6].

Historical Perspective

Contrary to common belief, the contemporary drug problems are not new. In fact, the use of psychotropic substances seems to be an almost universal phenomenon which has long been a great social concern. Today, there are only a few isolated societies in which psychoactive substances are not used. It is stated that the very desire to alter consciousness, whether by drugs or some other means "is an innate, normal drive analogous to hunger or the sexual drive." Blum identified only four out of 247

cultures where people do not use any substance which alters the mind. The only people without a traditional intoxicant are the Eskimos, "who had the misfortune to be unable to grow anything and had to wait for white men to bring them alcohol" [7-9].

Human beings have always had a desire to consume substances that make them feel relaxed, stimulated, or euphoric. People started chewing leaves, herbs and other natural products, and they cultivated plants which they used for food, for alleviating pain or recreational purposes. Some of these preparations produced euphoria, and many of these were used in religious rites. The later discovery of fermentation of fruits or juices was closely followed by the production of alcohol. One of the oldest drinks was a juice extracted from Palm trees (Palm toddy) (an incision is made on top of the stem of the tree during the night and the juice is collected early morning)[10], after being left in the sunshine for a few hours, it becomes fermented and gives the same effect as alcohol. It is still commonly used in South Asia. Initially, these drugs were used as natural products and were less harmful. As their potency is increased by distillation and other mechanisms, they become more intoxicating and harmful.

In the recorded history from ancient times, alcohol was the only drug mentioned causing problems in the Greek and Roman periods. I am sure there were other drugs used which alter mental conditions causing stimulation, relaxation and euphoria but alcohol was mentioned as causing significant social problems. The earliest recorded example of concern related to alcohol use is the prohibition of its use in the7th century under the Islamic law based on the commandment of God recorded in the Glorious Qur'an. Muslims are strictly forbidden from using alcohol and other intoxicants which alter consciousness and from an addictive behavior that is gambling[11]. In the 11th century, the technique of distillation became known in Europe, making it possible to produce more potent alcoholic beverages. In the 16th century, drunkenness was mentioned in England for the first time as a crime, and laws were passed against its use. In European colonies, drunkenness was prominent, but it was not considered a major problem or stigmatized behavior. In England, the consumption of beers and wines, particularly home-brews, was integrated into every aspect of family life[7].

In the 12th century the chewing of coca leaves was common in the Inca Empire (South America), mostly in religious and special social functions. The coca plant was also viewed as a divine gift of the Sun God giving energy and euphoria.

In the 14th century, coffee was initially used in Ethiopia for medicinal purposes. The technique of roasting made coffee cheaper and more pleasant to consume. Cultivation and use of coffee expanded into Arabia.

In the 15th century, Arabs spread the use of coffee to the Muslim countries. Use of coffee became predominant because wine is prohibited according to Islamic law. Initially, coffee was prohibited in Turkey (Middle East) and the coffee houses were closed but the ban was lifted some time later when it was realized that people did not stop drinking coffee. Coffee became a popular drink throughout the Middle East. When coffee was introduced in Europe from Muslim Turkey, it was banned on religious grounds as it was regarded as "infidel's drink." Later during the 16th century, its use was sanctioned.

Tobacco chewing and smoking were first observed by Europeans when they landed in America. Later, they cultivated and transported tobacco to Europe due to great financial rewards. Tobacco seeds were transported from Brazil to France and England for cultivation. Within a century, tobacco use became widespread in most European countries[7].

In 7th century, the opium poppy was introduced in India and China by Arabs, and

its use was limited to medicinal purposes. However, its use increased significantly especially in China. Later, British opium traders from India established depots at Canton and Macao and its trade became very profitable. As opium smoking spread and the number of Chinese addicts significantly increased compromising their productivity, the emperor of China prohibited its sale. The effort was initially successful with the destruction of all British opium stock in 1839. However, to protect this trade, Britain declared war on China. The first opium war was from 1839 to 1842 and the second opium war was from 1856 to 1860. China was defeated and the war ended with the Treaty of Nanking, which protected foreign opium traders from Chinese law. It is ironic to see how far the imperialist governments will go to destroy humanity for financial gains. The Maoist revolution ended drug addiction quickly. By 1952, there were no more addicts, no more pushers, and no more drugs smuggled. In only three short years, China went from 70 million drug addicts to none[12].

Cocaine and opiate addiction in the United States became increasingly identified with the underworld and organized crime. In 1914, Congress passed the Harrison Act which regulated and taxed the production, importation and distribution of opiates and coca products. It required all persons authorized to handle or manufacture narcotic drugs to register, pay a fee, and keep a record of the drugs in their possession. The act did not prohibit the supply of opiates to users by registered physicians. Temperance movements for alcohol use have been active since 1840s by religious organizations and finally the 18th amendment to the USA constitution was passed as "the national prohibition act of 1919" which required licensures for businesses that brew, distill and wholesale alcoholic beverages. The prohibition act and the religious movement of temperance were hoped to curtail the sale and use of alcohol.

Unfortunately, underground breweries and distilleries became very popular throughout the country to supply the demand for alcohol. The sale of alcohol in the black market and importation of alcohol from other countries by illegal means became widespread. This resulted in forcing Congress to repeal the 18th amendment by the 21st amendment (the 18th amendment is the only constitutional amendment that was repealed by another amendment – the 21st amendment)[7].

Cannabis, opium, coca, tea, coffee, tobacco, and alcohol became the most commonly used substances in the world. Tobacco, alcohol, and caffeine became the major three drugs of addiction in Europe and America. There was an initial opposition for their use but due to their widespread use, these substances were not regarded as drugs of addiction. The use of alcohol in Western countries is well accepted, and no criminal sanctions are imposed on alcohol use. In Muslim countries alcohol is prohibited, however its use along with other drugs has increased considerably during the last decade. Alcohol and tobacco are now recognized as highly addictive drugs causing severe detrimental effects on health.

What causes addiction?

Most addictions with drugs such as alcohol and opiates or pleasurable behaviors such as gambling and pornography start as pleasurable or recreational activities, but continued use or engagement in such behavior results in dire consequences. Many addicts do not recognize this at the early stages. Only when the behavior becomes out of control and causes problems to themselves and others that it is recognized. There are some controversies about which of the behavioral addictions are validated as true addictions. There has been no agreement among professionals on this controversial issue and more research is needed to have a clear definition and to establish the criteria for diagnosis.

The gambling disorder is included in the DSM-V, and requires five criteria to diagnose patients with clinically significant gambling related disorders[13].

Most people exhibiting addictive behaviors are emotionally stressed and or unstable and thus psychologically vulnerable to develop dependence on drugs. Research also showed that there are some genetic predispositions for drug dependence. Recent studies of twin families with history of drug abuse indicate that drug abuse is substantially heritable[14,15].

Genes of the dopamine system are likely candidates to harbor risk variants, as dopamine neurotransmission is involved in mediating the rewarding effects of drugs of abuse.

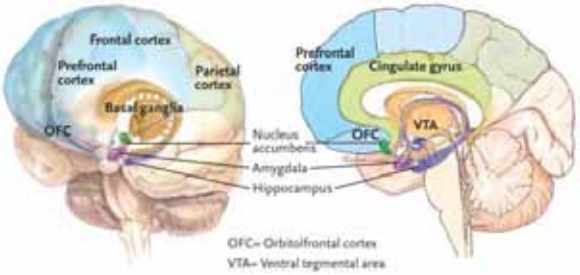
These data demonstrate the importance of dopamine gene variants in the risk for opioid dependence and highlight a functional polymorphism that warrants further study[16].

While genetics plays a role in drug addiction, it is important to recognize that environmental factors also play a significant role in the transmission of this disease. Recent research confirms the role of environmental factors such as the influence of parents and siblings on adolescent drug use. When one member of the family household is using a drug, it places the other members of the family at risk. Socio-economic conditions of the family, neighborhood level of social deprivation also affects the risk for drug abuse, beyond family socio-economic status[17,18].

How drugs influence brain and behavior

Most drugs of abuse directly or indirectly affect the brain's reward system through the neurotransmitter dopamine. The limbic system contains the brain's reward circuit and through the complex neuronal system links with cerebral cortex and mid brain structures including the hypothalamus, amygdale and other areas which process information resulting in perception of anger, fear, happiness and other emotions. The limbic system is activated by drugs, which results in mood-altering behavior. These parts of the brain are also responsible for executive functions and decision making.Thus, excessive drug use influences decision making behavior. Amphetamine and cocaine stimulate the neurons to release large quantities of the neurotransmitter dopamine, resulting in excessive stimulation leading to excitement, pleasurable feelings and euphoria. This pleasurable experience is remembered which results in continuous use of drugs and dependence on drugs. Brain imaging studies have provided information on the drugs' neurobiological effects, explained the causes and mechanisms of vulnerability to drug abuse, and yielded important insights into abusers' subjective experiences and behaviors, including their struggles in recovery. Recent neuroimaging studies suggest that people living with a drug addiction have considerable decreases in dopamine D2 receptors and in dopamine release, which may contribute to both the rewarding properties of substances and difficulties in abstaining despite adverse consequences. Brain areas such as the prefrontal cortex have been identified as being directly involved in assessing the reward potential of decision-making and vulnerability for relapse. Abnormal hippocampus and anterior cingulate functioning are associated with challenges in the ability to cope with stress, in addition to problems in cognition[19]. Structural MRI provides information on the location, shapes, and sizes of the brain's various regions.

Sagital sections of human brain showing Orbitofrontal cortex (OFC) and Ventral tegmental area (VTA)



A structural MRI study found that individuals with a history of abusing drugs have smaller prefrontal lobes. It also showed that chronic substance abusers' frontal lobe tissues contained a lower proportion of white matter than those of matched controls [20].

Researchers have used functional MRI to obtain detailed information about the roles of different brain areas in producing cocaine-induced euphoria and subsequent craving. An influx of cocaine described as a drug rush occurs during a brief period when a set of areas, including the caudate (an area of the basal ganglia), cingulate, and most of the lateral prefrontal cortex showed higher levels of activity. The participants' reports of craving commenced when the euphoria subsided and persisted as long as a different set of brain areas-including the nucleus accumbens (NAc)-remained activated. Positron Emission Tomography (PET) and single-photon emission computerized tomography (SPECT) have also shown the presence and actions of drugs of abuse in the brain's reward system with their euphoric properties and their ability to preoccupy addicted individuals. Dopamine flow in these areas is a main determinant of how much pleasure is derived. A PET study also revealed that while methamphetamine temporarily hyper-activates the dopamine system, chronic exposure to the drug reduces the availability of dopamine transporters, which may indicate a loss of dopamine cells[21] .

Opiate dependence

Opiate dependence is a major public health problem, and the illicit use of opiates contributes to the global burden of disease and can result in premature disability and death. Incidence and prevalence of blood borne viruses (e.g., HIV, hepatitis B, and hepatitis C) are higher in injection drug users[22].

The United States has seen a significant increase in the illicit use of prescription opiates. Prescriptions for opioid analgesics increased from about 75.5 million to 209.5 million in 10 years. Admissions for opiate drug dependence have increased from approximately 280,000 to 421,000 during a 10 year period (1999-2009) [23]. In a study of Jordanian opiate dependent patients, the major cause of premature death was accidental overdose, along with infectious disease. Moreover, a high prevalence of criminal activity and psychosocial difficulties are also found among Jordanian heroin users[24].

Addiction to opiates can be caused either by the recreational use of opiate based drugs, or it may be caused by prescribed use of the drugs. Opiates create a feeling of euphoria. The initial feeling of euphoria wears off in a short period and a user starts feeling withdrawal symptoms. They then use larger doses to reduce withdrawal symptoms and experience pleasure.

Often times, opiates such as Oxycontin, Oxycodone or morphine are prescribed for the treatment of chronic pain associated with degeneration of bones, arthritis, post surgical pain, cancer and other diseases. Unfortunately, many people who are prescribed opiate pain killers do not realize the risk of opiate addiction and believe that they are under no danger if they take the medication as prescribed by their doctor. Seventy five per cent of high school seniors perceive using heroin once or twice as dangerous, but only 40% perceive similar use of prescription opiates as dangerous[25].

Unfortunately, indiscriminate use of prescription opiates creates a major problem in the USA. Physicians are prescribing narcotic analgesics without proper justification. Patients are becoming addicted and in some cases they sell the drugs on the streets. While pain management clinics help patients with chronic pain, they are also the major contributors in creating prescription drug dependence. Iatrogenic drug addiction has become a major problem. No strict guidelines

have been developed for the use of these highly addictive drugs. Many physicians do not have a protocol about stopping drug use until it is too late. The new regulations and law enforcement efforts have curtailed the supply of prescription drugs and the cost of these drugs in the open market has increased considerably. This has resulted in many users switching to a cheaper drug – heroin.

Environmental factors such as availability of opiates, psychosocial stresses and lack of coping strategies also influence the risk of developing opiate addiction. Traumatic lifetime experiences such as post-traumatic stress disorder may increase the risk for opiate addiction. Weak parental bonds also increase the risk for illicit drug use during adulthood[26]. The risk for developing opiate addiction is a complex interaction between genetics, environmental factors, and the pharmacological effects of opiates. Genetic loci associated with opiate self-administration have been identified; and selective disruption of the gene encoding the mu opioid receptor, the principal target of opiates, can eliminate opiate self-administration and conditioned place preference[27]. Prolonged opiate use leads to changes in neuronal connections that result in an inability of the body to cope with or stop pain. Once in the brain, the primary target for abused opiates is the mu opioid receptor. Located throughout the brain, the highest density of this receptor occurs in areas modulating pain and reward (e.g., thalamus, amygdala, anterior cingulated cortex, and striatum). Activation of mu opioid receptors inhibits GABA-mediated dopaminergic neurons in the ventral tegmental area[28]. Human imaging studies have identified ongoing reductions in dopamine D2 receptor binding potential in opiate addicts and that this reduction correlates with the duration of opiate use[29]. The details of how the interaction between genes, environment, and drugs contributes to the development, persistence, and relapse to addiction have yet to be elucidated. This interaction forms the hypothesized foundation for the persistence of addiction vulnerability even in those who have discontinued drug use and indicates that long term relapse prevention strategies need to include both environmental and pharmacological interventions beyond the immediate period of withdrawal.

Diagnostic criteria for opioid dependence

DSM-5 Opioid Use Disorder - Diagnostic Criteria, American Psychiatric Association

In the **DSM-5,** Substance Use Disorder is the singular diagnosis which combines substance abuse and substance dependence. It is defined as such:

A problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least *two* of the following, occurring within a *12-month* period:

1) Opioids are often taken in larger amounts or over a longer period than was intended.

2) There is a persistent desire or unsuccessful efforts to cut down or control opioid use.

3) A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects.

4) Craving, or a strong desire or urge to use opioids.

5) Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home.

6) Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids.

7) Important social, occupational, or recreational activities are given up or reduced because of opioid use.

8) Recurrent opioid use in situations in which it is physically hazardous.

9) Opioid use is continued despite knowledge of having a persistent or recurrent physical or

psychological problem that is likely to have been caused or exacerbated by the substance.
10) Tolerance, as defined by either of the following:

a) A need for markedly increased amounts of opioids to achieve intoxication or desired effect.
b) A markedly diminished effect with the continued use of the same amount of an opioid.

11) Withdrawal, as manifested by either of the following:

a) The characteristic opioid withdrawal syndrome.
b) Presence of either of the following:

- Cessation of (or reduction in) opioid use that has been heavy and prolonged (i.e., several weeks or longer).
- Administration of an opioid antagonist after a period of opioid use.

Three (or more) of the following developing within a minute *to several days* after the cessation of (or reduction in) opioid use:
Dysphoric mood, nausea or vomiting, muscle aches, lacrimation or rhinorrhea, pupillary dilation, piloerection, sweating, diarrhea, yawning, fever, and insomnia [30].

Side effects of opiates

Opiate side effects include sedation, dizziness, nausea or vomiting, constipation, and respiratory depression which may lead to death in cases of overdose. People receiving prescriptions from several different providers, and take high daily doses of opiates are more prone to have an overdose.

Treating opiate intoxication

Mild to moderate opiate intoxication does not require treatment. Overdose of opioids results in respiratory depression. It requires treatment in an emergency department. Naloxone is usually used to reverse the respiratory depression.

Initial signs of dependence: Dependence is indicated by extreme fatigue, sleeping more than usual, or episodes of "nodding off" during normal activities. Other manifestations include: pinpoint and fixed pupils that are unresponsive to changes of light as well as changes in appetite and weight (both will often decrease drastically), loss of interest in usual activities, and constipation.
Common features of opiate addiction: lack of control over drug consumption, exhausting all financial resources, spending more and more time using drugs, denial or thinking that there is no problem and lying or hiding the drug use, using drugs despite known negative consequences such as financial breakdown, effects on physical health, family problems, occupational and legal problems, inability to maintain social relationships, and multiple failed attempts to quit.

Withdrawal symptoms:

The main features of opioid withdrawal are nausea, vomiting, diaphoresis, yawning, fatigue, aches and pain, muscle cramps, diarrhea, mydriasis, and piloerection. Other symptoms include chills, irregular heartbeat, itching, restless leg syndrome, flu-like symptoms, diarrhea and weakness. As tolerance goes up, susceptibility to withdrawal becomes marked. Withdrawal symptoms can be excruciating and include muscle aches, anxiety, sweating and insomnia. Subjective symptoms are much greater than objective signs. Cravings begin 4 to 6 hours after the last dose of short-acting opioids, leading to active drug-seeking behavior. This is followed by anxiety, diaphoresis, and agitation after 8 to 12 hours. Peak withdrawal discomfort is usually experienced after 36 to 72 hours and decreases thereafter[31].

Treatment of opiate use disorder

The main objective of treatment is to reduce dependence and issues associated with use. It is important to realize that treatment for opiate

addiction requires long-term management. Discontinuing opiates without medical supervision is not only difficult but it is also dangerous. Opiates cause physical changes within the body and the brain that can make quitting cold turkey almost impossible except in prisons or in hospitals under medical supervision. Generally, it is not advisable to quit opiates without at least tapering the drugs off or being under the direct care of a healthcare professional because there is a risk of opiate withdrawal symptoms leading to deadly consequences. Behavioral interventions alone have extremely poor outcomes, with more than 80% of patients returning to drug use. Most often, a combination of medical intervention and psychological counseling is needed in order to effectively help an individual overcome opiate addiction. Because this addiction is medically recognized as a central nervous system disorder, much attention has been placed on medical intervention and treatment of opiate addiction through medication replacement therapies. The cravings and withdrawal symptoms associated with quitting opiate use are very strong and difficult to overcome. It is for this reason that medication-assisted treatments are often recommended. These therapies address the changes that drugs have caused in a user's brain. The pharmacotherapy with methadone, buprenorphine and naltrexone combined with psycho-social services are effective in reducing opiate use, dangerous behavior, and criminal activity, while improving the mental health of patients[32]. Medication-assisted therapies are safe in that they are administered by trained physicians in measured daily doses. They are not taken intravenously and thus eliminate the risk of HIV and other IV-related diseases; when taken correctly they eliminate the risk of overdose.

Pharmacological treatments for opiate disorder

The three medications approved by the USA Federal drug Administration (FDA) for long-term treatment of opiate dependence are: the opioid agonist methadone, the opioid partial agonist buprenorphine, and the opioid antagonist naltrexone. Oral naltrexone is effective in treating opiate addiction but recent studies using extended release naltrexone injections have shown good results in patients who lack strong motivation. For many years, methadone, an opioid agonist, was the main pharmacologic treatment option for opioid dependence, but its availability in the United States was limited to licensed programs. The introduction of another opioid agonist in the form of sublingual bupre-norphine, which can be prescribed in office-based practices, has greatly expanded access to treatment for individuals with opioid dependence. The opioid antagonist naltrexone has been available as a treatment for opioid dependence for many years, but its use has been limited, particularly in countries where agonist treatment is available.

Sometimes, opiate addiction treatment takes place in hospitals or residential treatment centers. Because of the severity of withdrawal symptoms that are associated with opiate dependence and addiction, opiate addiction requires a longer stay in a residential treatment setting before safely integrating into an outpatient treatment setting.

Methadone and methadone maintenance clinics:

Methadone is the oldest of these kinds of treatments and has been used since the 1960s. It must be taken in certified, specialized methadone clinics. Methadone is given each day in sufficient quantity to counteract the withdrawal symptoms.

Methadone is a synthetic mu opioid receptor agonist, administered orally in liquid or tablet form. Following oral administration, peak plasma levels are reached within 2–4 hours and the elimination half-life at the steady state is approximately 28 hours, allowing for once daily dosing. Methadone safety is well

established. Like other opiate agonists, methadone has the potential to induce respiratory suppression. Recent increases in methadone-associated deaths are primarily related to its minimally regulated use in the treatment of pain and not due to its use in the treatment of opiate dependence [33, 34].

Methadone response appears to be dose-related with most patients stabilizing at doses between 60 and 120 mg daily. Response is most frequently measured in terms of retention in treatment and discontinuation of opiates, other drugs and improvement of psycho-social functioning. At our clinic, all patients with opiate dependence are initially evaluated by the physician and have a physical examination and laboratory work. Once the diagnosis is established, they receive an initial oral dose of methadone 20-30 mg daily in either tablet or liquid form. The dose is increased between 5 - 10 mg daily until it reaches 50 mg. During the initial evaluation, patients are instructed to stop use of opiates, benzodiazepines, and other drugs due to serious side effects. Patients who are using benzodiazepines are required to discontinue the benzodiazepines after consulting with the prescribing physician or gradually discontinuing them in 4 to 6 weeks. All patients are required to consult with a physician to increase the dose of methadone. All patients are seen weekly by a trained counselor who assesses psycho-social functioning and develops a treatment plan to help the patient as needed. The treatment approach is problem-oriented and focuses on achieving well-defined goals. Providing intensive psychosocial services and counseling may improve treatment outcomes.

Methadone maintenance for patients with opiate disorders is effective in decreasing opiate use, psychological and medical morbidity associated with opiates, improving social functioning, reducing the spread of HIV infection and decreasing criminal activity. The most common side effects of methadone are constipation, increased sweating and sexual difficulties[35,36]. Retention in methadone treatment clinics and adherence to the treatment regimen are similar to or exceed results for other medically managed diseases such as hypertension, dyslipidemia, and diabetes mellitus[37]. When the patient is well stabilized on a specific dose and does not experience any side effects and shows improvement in psychosocial functioning, gradual detoxification can be started.

Detoxification period varies from patient to patient depending on the patient's self-confidence, social circumstances, marital stability, occupational stability and coping capabilities. Methadone is an effective means for an addict to discontinue opiates and move forward with a more productive life. It is much safer and cleaner than opiates and allows people to successfully hold a job and manage other aspects of their lives. A small percentage of patients will continue to use opiates.

Buprenorphine

Buprenorphine is a semi-synthetic mu opioid with weak partial agonist effects. It has less abuse potential than other opioids because the intensity of the rewarding effect is milder and plateaus at higher doses[38]. It produces a normalizing effect in individuals with opioid addiction already in withdrawal. Sublingual buprenorphine has a long half-life (24 to 60 hours, mean 37 hours). Suboxone contains 2 active ingredients; buprenorphine and naloxone at the ratio of 4:1. Naloxone is intended to deter individuals from abusing the medication. Naloxone blocks the effect of opiates. While a patient is on Buprenorphine (which contains Naloxone) takes opiates he will not feel any euphoric effect of opiates and therefore it acts as a deterrent for relapse. The intravenous use of opiate gives a surge to the individual and he will not experience this when taking. Therefore, Suboxone must be given after the total discontinuation of the

opiate, and the patient is already in withdrawal.

The literature on safety evaluation of buprenorphine maintenance is less developed than that of methadone, but is considered to be quite safe. During maintenance treatment, patients have reduced illicit opiate use but following buprenorphine taper, some patients return to illicit opiate use. In one study comparing heroin addicts to prescription-opiate addicts, the heroin addicted patients had more severe addiction and did not do as well with buprenorphine treatment as the less ill prescription opiate dependents. Buprenorphine is a safe treatment with expected side effects of sedation, constipation, headache, nausea or vomiting, and dizziness, and it carries a lower risk of respiratory depression than full opioid agonists.

There are rare reports of hepatoxicity, in addition to a few reports of death when combined with benzodiazepines [39, 40].

Buprenorphine, was approved by the FDA in 2002 and can be prescribed by physicians and can be taken in physicians' offices rather than solely in specialized clinics like methadone. It is taken as a tablet or sublingually once a day. For the induction phase, patients can be started on buprenorphine (maximum 8 mg on day 1, as per the drug monograph, in single or divided doses) 12 to 24 hours after the last opioid dose. Dosage can then be adjusted based on clinical symptoms. Patients should be observed medically for at least two hours after the initial dose[41]. It is well established that moderate to high doses (8 to 16 mg) have significantly higher efficacy. Although the maximum dose recommended by the manufacturer is 24 mg, doses of up to 32 mg have been used in some trials.

Buprenorphine's long half-life and slow dissociation from opioid receptors allows for the possibility of less-than-daily dosing[42].

Buprenorphine is an effective detoxification agent for opioid dependence. Although methadone remains a slightly superior substitution treatment, bupreno rphine's lower abuse potential and good safety profile make it particularly appealing for family physicians. Those patients that fail to respond are then referred for methadone maintenance. Moderate to high doses (8 to 24 mg) of buprenorphine are usually required. Use of buprenorphine-naloxone in primary care settings is efficacious, safe, and feasible within reasonable time constraints [43].

Naltrexone: Naltrexone is an opioid receptor antagonist used in treatment of opioid dependence. It helps patients overcome opioid addiction by blocking the drug's euphoric effects. Naltrexone should not be confused with Naloxone (which is used in emergency cases of opioid overdose) as it can cause acute opioid withdrawal symptoms. Return to opiate use following detoxification is caused by negative reinforcement of environmental stimuli (e.g., cues and social stressors) and if an antagonist prevented the addict from relieving this negative state through opiate use, then the behavior of turning to opiates in these situations would eventually cease. Naltrexone can block the effect of opiates for approximately 24–48 hours after oral dosing. Naltrexone is a useful non-addictive pharmacotherapy for opioid addiction. Naltrexone is non narcotic and non addictive drug. Therefore there is no chance of a patient becoming addicted to Naltrexone whereas Methadone and Suboxone contain opiates which are narcotics and has potential for abuse. In Russia and some Muslim countries (like Jordan) opiate agonists such as Methadone or Suboxone are not approved to be used for treatment of opiate addiction.

While some patients do well with oral Naltrexone, it must be taken daily and a patient whose cravings become overwhelming can take opioids simply by skipping the dose before taking the opioids. A monthly injection of long acting depot naltrexone can be used for patients to motivate themselves to stick to a treatment regime which is very useful. The

plasma levels sufficient to block 25 mg of heroin are approximately 1–2 ng/ml, a level maintained for 21–28 days following 380 mg of the intramuscular extended release formulation [44]. In 2010, the FDA approved extended-release injectable naltrexone for the treatment of opioid dependence. This approval was partly based on the results of a trial conducted at 13 addiction treatment centers in Russia where opioid agonist treatment is prohibited. Extended release naltrexone may improve treatment outcomes because non-adherence to daily oral regimens is reduced by delivery of a once monthly injection. Currently, there is limited data regarding the extended release intramuscular injection. A larger trial in Russia retained 53% of patients at 6 months compared to 38% for placebo. Patients receiving extended release naltrexone also had significantly fewer days of illicit opiate use[45]. Naltrexone should be given after a week of abstinence from opioids due to risk of acute withdrawal. Common side effects are diarrhea and abdominal cramps. High doses may cause liver damage.

Research studies recently showed that a higher retention rate can be achieved with Naltrexone implants. The implants are not currently approved and are not available in USA[46].

Tramadol versus methadone for treatment of opiate withdrawal

Tramadol may be as effective as methadone in the control of withdrawal and could be considered as a potential substitute for methadone to manage opioid withdrawal. Seventy patients randomly assigned to two groups received either prescribed methadone (60 mg/day) or tramadol (600 mg/day). The withdrawal symptoms of patients were evaluated before and after rapid opiate detoxification. No significant differences existed between the two groups. Drop out rates were similar in both groups. Side effects in the tramadol group were as or less common than in the methadone group except for increased perspiration with Tramadol[47].

Treatment of opiate dependence in pregnant patients

Opioid use may result in poor nourishment, general medical complications, miscarriage and preterm birth. Fifty percent of the infants born to women with opiate dependence are physiologically dependent on opioids and may experience withdrawal symptoms. The placenta is metabolically active and can increase clearance of both methadone and buprenorphine. Methadone is the standard of care for pregnant women and has been shown to reduce illicit opioid use, enhance compliance with obstetric care, and improve neonatal outcomes. Since methadone does not have active metabolites, patients may experience early withdrawal and may require increases in or splitting of methadone dose during the second and third trimesters. It is recommended that neither naloxone nor naltrexone be administered during pregnancy, thus buprenorphine should be administered as the mono product and naltrexone should be avoided.

In a small Cochrane meta-analysis of maintenance treatment in pregnancy, there were no differences in maternal or fetal outcomes between groups taking buprenorphine or methadone. Recent trials have suggested buprenorphine to be superior in terms of fetal outcomes, with less severe neonatal abstinence syndrome[48-50].

Psychosocial treatment of opiate use disorder

Individuals with substance use disorder are often ambivalent about giving up their habit. They deny and minimize the negative consequences of their behavior. They struggle with the emergence of cravings and thoughts about using the drugs. Other stresses such as

influence of friends and family members who are using drugs, unemployment, hopelessness, despair and persistent pain make the individual more vulnerable to relapse. They need supportive therapy and guidance to strengthen their coping mechanism. Psychosocial treatment for opiate use disorder helps in bringing about better patients' behavior, thought process and social functioning. The primary goal of this treatment is enhancing motivation to stop drugs, teaching coping with stress, changing reinforcement contingencies, fostering management of pain effects and enhancing social support and inter-personal functioning. Sustaining motivation is required to forgo the rewards of substance use, to tolerate the discomfort of withdrawal symptoms and to cope with the cravings. Coping skills are required to manage and avoid situations that place the individual at risk of relapse. It is reported that successful improvement occurred in patients receiving both opiate agonists (methadone or subsoxone) treatments as well as psychosocial treatment services[35].

Drug rehabilitation:

Some people do not want to go with medication-assisted therapy and therefore, do not wish to take part in a methadone maintenance program. For those who decide not to quit cold turkey but also not to take part in a medication replacement program, drug rehab is an option. Drug rehab involves a combination of medical intervention, monitoring, peer support and counseling to effectively help patients overcome opiate addiction. Many drug rehabilitation programs do utilize methadone maintenance or Suboxone for a short period but most provide alternatives that are also effective at helping patients get past the strongholds of opiate addiction and move on with their lives.

There are several different kinds of drug rehabilitation facilities, and the one that works for a certain individual may not work for another. The main difference in programs is that in some facilities housing is provided. These facilities are called residential centers, and they provide around the clock care, daily counseling in either one-on-one, group settings or both. They are usually more costly than the alternative outpatient programs and usually require people to leave their job, family, and other parts of their lives for the duration of treatment.

Is addiction primarily a brain disease??

There is no single theory or approach that can offer a complete explanation for the existence of any social problem. The view of addiction as primarily a brain disease disregards the extensive body of research that suggests neurogenetic explanations of mental illness contribute to negative perceptions towards people with mental illness, and substance use problems. The brain disease model implies that addicted individuals are unable to exercise any degree of control over their substance use. This focus on a biological model may bring about unintentional consequences on a person's sense of identity, responsibility, notions of autonomy, illness, and treatment preference.

Addiction consists of interacting biological and psychosocial mechanisms because the mechanism (e.g., the behavior) contributing to addiction involves action within a social system. Every learned action, whether pro-social or anti-social, may be prompted by social conditions such as a lack of resources, conflicts, social norms, peer pressure, an underlying drive (cravings similar to hunger and sex drive) or a combination of these factors. Factors such as drug availability within the environment can increase craving and consequently, the vulnerability for relapse. It is believed that laws and policies that are lenient to substance use are linked with greater prevalence of use and criminal activity.

However, research findings have not confirmed this claim. In one study comparing cannabis use in San Francisco (where cannabis is criminalized) and Amsterdam (de-facto decriminalization), there was no evidence to support claims that criminalization laws reduce use or that decriminalization increases use. In fact, San Francisco reported a higher cannabis use rate than Amsterdam[51]. Similarly tobacco smoking has become less acceptable as a normative method of social interaction due to the medical interventions for smoking cessation as well as social and public health efforts to curtail smoking behavior. It shows that social and public health efforts in curtailing the smoking behavior are more effective than laws prohibiting the smoking.

Drug use is a pleasure-oriented desire and continued medicalization of addiction will obviate all responsibility for behaviors associated with drug use. The opinion that people with addictions lack decision-making capacity is supported by research in both addiction neuroscience and the neuroscience of decision-making. Substance use influences voluntary brain mechanisms and renders individuals incapable of making rational decisions.

The brain responds to particular social cues that may provide instant pleasure. Brain systems that moderate feeling, memory, cognition, and engage the individual with the world influence the decision to consume or not consume a drug, or participate in a specific behavior or series of actions. The degrees in which self-control is exerted, free choice is realized and desired outcomes achieved are dependent on these complex interacting bio-psycho-social systems. The complex combination of biological, psycho-social and systemic factors may explain why it is so difficult for some individuals to refuse or stop consuming illicit drugs in the face of increasingly negative consequences[52]. There is no question that the addictive behavior is genetically determined and mediated by neurotransmitters which promotes "reward behavior".

However in my opinion the humans are capable of resisting genetic predispositions which may lead to negative consequences. Our experience with treatment of alcohol addiction shows that psychosocial interventions, including spirituality, play a significant role in overcoming this problem.

The current situation of drug use in the Muslim world

Alcohol is forbidden in the Muslim world, but the alcohol consumption has nearly doubled across the Islamic world in the last decade. The French newspaper *Le Monde* reported that between 2005 and 2010, the average consumption of alcohol by the French dropped from 104.2 liters of alcohol per year to 96.7, while in the same period in the Middle East and Africa it increased by 25%, In countries like Iran, Saudi Arabia, Libya and Pakistan where alcohol is legally banned, drinking is still commonplace[53, 54].

Contrary to the Islamic teaching, unfortunately Muslims are heavily involved in planting, harvesting, refinement, smuggling and distributing heroin and cannabis to the Western countries. Morocco is the largest cannabis exporter to Europe through Spain. Afghanistan, Pakistan and Iran are the major producers and exporters of heroin. In 2007**,** Afghanistan produced an extraordinary 8,200 tons of opium (34% more than in 2006), becoming practically the exclusive supplier of the world's deadliest drug (93% of the global opiates' market)[55]. Taliban initially opposed the production of heroin, but they realized that these narcotics provided an invaluable source of income, and they supported its production. They argued that it is permissible because it is consumed by non-believers in the West. Islam does not permit the production and sale of narcotics for Muslims or non-Muslims.

According to *United Nations Office on Drugs and Crime* (UNODC) in 2009, Afghanistan has around one million heroin and opium addicts aged between 15 and 64 years out of a population of 30 million, making it the world's top user per capita. Sixty thousand women in Afghanistan regularly take illegal drugs. HIV epidemic among injection drug users increased from 3% (2005), to 7% average in three main cities (2009). Iran has 1.2 million "drug users," and 2.26 percent of the population aged between 15 and 64 are addicted to opiate. In 1979, Pakistan has no heroin addicts but 20 years later, there were 5 million addicts. In 2011, nearly six percent - or 6.4 million adults used drugs. Most of the heroin in Europe is transported via Turkey. British Muslims are also heavily involved in drug use and the sale of the drugs. These young men were seldom educated in understanding and respecting the Islamic values or the dangers of drug use.

In United Arab Emirates, alcohol and prescription-drug use has been on the rise for the past 10 years and Tramadol, a painkiller similar to opiates such as morphine, has been a commonly prescribed drug of addiction. Community surveys conducted in Dubai and al-Ain, United Arab Emirates have further confirmed a high prevalence of drug disorders[56-59].

In Saudi Arabia, amphetamine abuse is most prevalent. Saudi authorities confiscated 12 metric tons of amphetamine (the world drug report in 2010 UNODC). Professor Jallal Toufiq, founder of the Middle East and North Africa "Harm Reduction Association," told the USA Cable News Network (CNN): There is a worsening of the drug situation in the whole region. However, there is a void in terms of data and information. In many Muslim countries, there is a lack of political willingness to accept that a drug problem exists. People just do not want to deal with this problem. Peer pressure is a significant factor influencing the young people to use the drugs. Saudi Arabia has strict laws for drug importation and sale (death penalty). However, so far, not enough attention is given to education or treatment[60]. The incidence of alcohol and drug use among Muslims is gradually increasing in USA, but it has not reached the same level as among non-Muslims. Strict religious prohibition against the drugs plays a major role in curtailing the drug seeking and using behavior. The exact data about the Muslim minorities' drug use is not available as data is not collected based on religious preferences. The actual incidence may be much higher than observed as there is denial by addicts and their family members. They tend to minimize the issue until it is too late. Even if the family members are aware of the problem they do not talk about it. They do not seek help due to shame and guilt, and the fear that the problem will become known in the community. Alcohol use is relatively more common than the use of other drugs.

Islamic Perspective

Shari`ah (Islamic Law) was established in the 7th century based on Qur'anic commandment. The warning against using intoxicants was revealed by Allah (ﷻ) and was gradually introduced to the people until the total prohibition was declared. Allah (ﷻ) says,

"*They ask you (O' Muhammad) about khamr (alcohol) and gambling. Say: "In them there is great sin, and some profit, for men, but sin is greater than the profit*"[61].

The Prophet Muhammad (ﷺ) said: Every intoxicant is Khamr and every intoxicant is forbidden[62].

Islam stops the wrong behavior before its inception so that it will not become a major problem. By declaring that *Khamr* is prohibited, taking intoxicants became a major sin and for a strong believer, this commandment serves as a preventive measure. People who are addicted to alcohol, opioid and other substances must seek medical and

psychological treatment, but they can also get the benefit from spiritual guidance. It is a responsibility of the Muslim community to support and help persons who need treatment for addiction rather than stigmatizing or outcasting them. These patients also require guidance in improving their social relationships, getting employment and gaining respect in the community.

As discussed earlier, there are multiple factors, which may cause addictive behavior. Current research points out that there is a genetic predisposition for addiction. However, an individual has a capacity to control these tendencies. Sexual desire is genetically determined and controlled by neuronal and hormonal discharges. In spite of this, an individual should have full control on the expression and fulfillment of the sexual desires. Similarly, an individual can control the desire to take drugs, although there may be genetic predisposition.

According to Islamic beliefs, the human soul is composed of three elements:

1) *Al-Nafs al-Ammarah* (soul commanding of evil or evil-inciting soul)

2) *Al-Nafs al-Lawwamah* (self–reproaching soul)

3) *Al-Nafs al-Mutma'innah* (tranquil, peaceful soul)

The goal of every Muslim is to be aware of the stage of the development of his or her own soul and discipline himself in obedience of God. He / She must strive to control *al-Nafs al-Ammarah* and achieve *al-Nafs al-Mutma'innah*[63].

Freud described human's basic instinctual drives (id), human's perceptual, intellectual-cognitive, and executive functions (ego) and human's capability of controlling self desires, reflecting social standards learned from parents, culture and religion (super ego) as parts of the personality structure. 'id' is primarily an instinctual desire, and the 'ego' represents the self, and it mediates between the demands of primitive instinctual drives (id) and internalized parental and social prohibitions (super ego). Super ego is associated with ethics, values and self-critical assessment. It is influenced by parents, teachers and the religious beliefs. This is the part of conscience development. The hunger, sexual derives, etc. are genetically determined and influenced by id. However, the super ego controls or directs its appropriate expression.

There is no question that the desire to use a drug is genetically determined and mediated through the brain's neuronal system. However, humans have the capacity to control and restrain its use. This capacity of restraining is influenced by parenting and religious guidance. The Glorious Qur'an has described these psychological interactions in 6th century in terms of *al-Nafs al- Ammarah, al-Nafs al-Lawwamah,* and *al-Nafs al-Mutma'innah*.

Allah (ﷻ) says in the Qur'an: "*O you who believe, intoxicants, gambling, the altars of idols and game of chance are admonitions of the devil; you shall avoid, that you may succeed"*[11].

In overcoming addiction, one needs to feel guilty for allowing one self to be controlled by the lower desires and seek help from Allah (ﷻ) to give him strength to overcome the habit. Allah (ﷻ) says:

"And be you not like those who forgot Allah. He made them forget their own souls. Such are the rebellious transgressors"[64].

The solution to the drug problem is not simple. It must be recognized that environment plays a significant role in causing drug addiction. Affluence, easy access to the drugs, permissive environment, and peer pressure are major contributing factors. The Muslim community must be educated about the importance of early upbringing, parental guidance and developing strong religious beliefs, which will help in building a super ego or consciousness (*al-Nafs al-Lawwamah*, the self-reproaching soul). This is necessary to develop a strong ego which will resist temptation (*al-Nafs al-*

Ammarah) for drug use and to achieve *al-Nafs al-Mutma'innah*. A strong belief in Allah (ﷻ) and the respect for *Shari`ah* law as well as use of consciousness in decision making is necessary. A Muslim addict must be encouraged to adopt the Islamic way of life. Educational programs must be developed for middle and high school children informing them about negative consequences of drug use, resisting peer pressure and adopting Islamic way of life. The most effective strategy is prevention but unfortunately in most countries of the world this strategy is not implemented. Islam provides clear direction for every aspect of life. The Qur'anic legislation concerning the prohibition of using intoxicants gives Islam a distinct place in comparison to other religions.

The treatment of drug addiction must be regarded as a medical treatment and all addicts must be encouraged to seek medical and psychosocial treatment. Islam does not "shame" its believers when they seek treatment, and Allah (ﷻ) forgives the shortcomings. The community has the responsibility to support and assist in recovery whenever possible.

The prescription and the dispensing of the narcotics must be reviewed, as the prescription opioid abuse became the most serious problem in the world today. Many young men do not realize that prescription opiates are potentially dangerous drugs.

Abstinence-oriented treatment programs are preferable in Muslim majority countries. The recently introduced anti-opiod medication naltrexone (by injection and possibly as an implant) is effective in blocking the euphoric effects of opioid. The effects of long acting naltrexone last 3-4 weeks and this will be a useful deterrent for opioid use. This medication along with psychosocial support system, guidance to improve the family life and occupation may be the best options of treatment in Muslim majority countries. There is no risk of abuse, dependence and diversion of this drug. The opioid agonists such as methadone and buprenorphine have a risk of abuse, dependence and diversion. Many Muslim governments do consider the use of opioid agonists as *haram* (forbidden) and this must be respected. However, the use of methadone and buprenorphine for opioid drug addiction must be acceptable in Muslim countries where their dispensing is permissible.

For Muslim patients, psychotherapy and counseling should focus on spirituality, strong belief in God, asking for forgiveness and mercy. These will increase the hope and give strength to the coping mechanisms. The positive affective status of spiritual experience may affect the brain reward system, and the patient may recognize the new cues for pleasure, redirecting the pleasure reward system to the new religious experiences[65]. Religious guidance can also direct the patient to adopt a healthy lifestyle.

Various Islamic countries have instituted support groups of Alcoholic Anonymous (AA) and Narcotic Anonymous (NA) for patients with addiction. They have modified the 'twelve steps' and replaced the word 'higher power' with Allah ﷻ). These support groups are also helpful in the recovery of Muslim patients when presented with Islamic spiritual beliefs. Prayers and *Dhikr* (remembrance of Allah (ﷻ) should be incorporated in the treatment regime.

Strict control of drug trafficking, and manufacturing of narcotics and pharmaceutical products containing opioids are absolutely necessary. Close monitoring of prescriptions can avoid iatrogenic dependence. Stigma should be removed, and addicts should be treated as victims and patients rather than criminals. Legal statue should be applied equally to affluent and non-affluent residents of the country.

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CANNABIS

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Abstract

Cannabis, The most commonly used illegal drug, is produced from dried leaves, flowers, stems, and seeds of the weed Cannabis Sativa. Various patterns of usage are explained. The main cannabinoid receptor is anandamide. Cannabis contains at least 60 psychoactive cannabinoids, the most important of which is 9-8 tetrahydrocannabinol (THC). The drug is metabolized to active and inactive metabolites and their absorption into fat means that urine tests remain positive for up to 4 weeks after regular use has ceased. Acute intoxication, general and chronic ill-health effects including psychiatric and organic syndromes is explored. The immediate effects include mild euphoria, a sense of enhanced well-being, subjective sense of enhanced sensation, relaxation, altered time sense, and increased appetite. Physically there is mild tachycardia, variable dysarthria and ataxia. Acute harmful effects include mild paranoia, panic attacks, and accidents associated with delayed reaction time... Chronic harmful effects include dysthymia, anxiety/depressive illnesses, and the disputed amotivational syndrome. Cannabis use can precipitate an episode of or relapse of schizophrenia. In addition, in regular users it is associated with dose-related paranoid ideation and other psychotic features. Historical background, safety, drug testing, gateway theory and legal status are discussed.

Keywords: Addiction, cannabis, marijuana.

Introduction:

Cannabis is also known as **marijuana**[1], and by neumerous other names is a preparation of the cannabis plant intended for use as a psychoactive drug and as medicine. Pharmacologically, the principal psychoactive constituent of cannabis is tetrahydrocannabinol (THC), one of 483 known compounds in the plant, including at least 84 other cannabinoids, such as cannabidiol (CBD), Cannabinol (CBN), tetrahydrocanna bivarin (THCV) and cannabigerol (CBG)[2]. Cannabis is often consumed for its psychoactive and physiological effects, which can include heightened mood or euphoria, relaxation, and increase in appetite[3]. Unwanted side effects can sometimes include a decrease in short-term memory, dry mouth, impaired motor skills, reddening of the eyes, and feelings of paranoia or anxiety[4].

Contemporarily, cannabis is used as a recreational or medicinal drug, and as part of religious or spiritual rites; the earliest recorded uses date from the 3rd millennium BC[5]. Since the early 20th century cannabis has been subject to legal restrictions with its possession, use, and sale.

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Preparations containing psychoactive cannabinoids are currently illegal in most countries of the world. According to the United Nations cannabis is considered the most used illicit drug in the world. In 2004, the United Nations estimated that global consumption of cannabis indicated that approximately 4% of the adult world population (162 million people) used cannabis annually, and that approximately 0.6% (22.5 million) of people used cannabis daily[6].

History

Cannabis is indigenous to Central and South Asia[7]. Evidence of the inhalation of cannabis smoke can be found in the 3rd millennium BC, as indicated by charred cannabis seeds found in a ritual brazier at an ancient burial site in present day Romania[8].

In 2003, a leather basket filled with cannabis leaf fragments and seeds was found next to a 2,500 - to 2,800- year old mummified shaman in the northwestern Xinjiang Uygur Autonomous Region of China[9,10]. Evidence for the consumption of cannabis has also been found in Egyptian mummies dated about 950 BC[11,12].

Cannabis is also known to have been used by the ancient Hindus of India and Nepal thousands of years ago. The herb was called *ganjika* in Sanskrit (गांजा, *ganja* in modern Indo-Aryan languages)[13,14].

Cannabis was also known to the ancient Assyrians, who discovered its psychoactive properties through the Aryans[15]. Using it in some religious ceremonies, they called it *qunubu* (meaning "way to produce smoke"), a probable origin of the modern word "cannabis"[16]. Cannabis has an ancient history of ritual use and is found in pharmacological cults around the world. Cannabis was used as a religious sacrament by ancient Jews and early Christians[17,18] due to the similarity between the Hebrew word "*qannabbos*" ("*cannabis*") and the Hebrew phrase "*qenébósem*" ("aromatic cane"). It was used by Muslims in various *Sufi* orders as early as the *Mamluk* period, for example by the Qalandars[19].

A study published in the *South African Journal of Science* showed that "pipes dug up from the garden of Shakespeare's home in Stratford-upon-Avon contain traces of cannabis"[20]. The chemical analysis was carried out after researchers hypothesized that the "noted weed" mentioned in Sonnet 76 and the "journey in my head" from Sonnet 27 could be references to cannabis and the use thereof[21].

Cannabis was criminalized in various countries beginning in the early 20th century. In the United States, the first restrictions for sale of cannabis came in 1906 (in District of Columbia)[22]. It was outlawed in South Africa in 1911, in Jamaica (then a British colony) in 1913, and in the United Kingdom and New Zealand in the 1920s[23]. In 1925 a compromise was made at an international conference in The Hague about the International Opium Convention that banned exportation of "Indian hemp" to countries that had prohibited its use, and requiring importing countries to issue certificates approving the importation and stating that the shipment was required "exclusively for medical or scientific purposes". It also required parties to "exercise an effective control of such a nature as to prevent the illicit international traffic in Indian hemp and especially in the resin"[24,25]. In the United States in 1937, the Marihuana Tax Act was passed, and prohibited the production of hemp in addition to cannabis. The reasons that hemp was also included in this law are disputed. Several scholars have claimed that the act was

passed in order to destroy the US hemp industry[26,27,28]. The United Nations' 2012 *Global Drug Report* stated that cannabis "was the world's most widely produced, trafficked, and consumed drug in the world in 2010", identifying that between 119 million and 224 million users existed in the world's adult (18 or older) population[29].

Preparations

Whole flower and leaf

The terms cannabis and marijuana generally refer to the dried flowers and subtending leaves and stems of the female cannabis plant[30]. This is the most widely consumed form, containing 3% to 22% THC[31,32]. In contrast, cannabis varieties used to produce industrial hemp contain less than 1% THC and are thus not valued for recreational use[33].
This is the stock material from which all other preparations are derived. It is noted that cannabis or its extracts must be sufficiently heated or dehydrated to cause decarboxylation of its most abundant cannabinoid, tetrahydrocannabinolic acid (THCA), into psychoactive THC[34].

Kief

Kief is a powder, rich in trichomes[35], which can be shifted from the leaves and flowers of cannabis plants and either consumed in powder form or compressed to produce cakes of hashish[36]. The word "kif" derives from Arabic (كيف) (Kayf), meaning well-being or pleasure[37].

Hashish

Hashish (also spelled hasheesh, hashisha, or simply hash) is a concentrated resin cake or ball produced from pressed kief, the detached trichomes and fine material that falls off cannabis flowers and leaves[38]. It varies in color from black to golden brown depending upon purity and variety of cultivar it was obtained from[39]. It can be consumed orally or smked[40].

Tincture

Cannabinoids can be extracted from cannabis plant matter using high-proof spirits (often grain alcohol) to create a tincture, often referred to as "green dragon"[41].
Nabiximols is a branded product name from a tincture manufacturing pharmaceutical company[42].

Hash oil

Hash oil is obtained from the cannabis plant by solvent extraction, and contains the cannabinoids present in the natural oils of cannabis flowers and leaves[43]. The solvents are evaporated to leave behind a very concentrated oil.
Hemp oil is very different from both hemp seed oil and cannabis flower essential oil[44]. Owing to its purity, these products are consumed by smoking, vaporizing, eating, or topical application.

Infusions

There are many varieties of cannabis infusions owing to the variety of non-volatile solvents used. The plant material is mixed with the solvent and then pressed and filtered to express the oils of the plant into the solvent. Examples of solvents used in this process are cocoa butter, dairy butter, cooking oil, glycerine, and skin moisturizers. Depending on the solvent, these may be used in cannabis foods or applied topically[45].

Methods of consumption

Cannabis is consumed in many different ways[46]: Smoking, which typically involves

inhaling vaporized cannabinoids ("smoke") from small pipes, bongs (portable versions of hookahs with water chamber), paper-wrapped joints or tobacco-leaf-wrapped blunts, roach clips, and other items[47].
Vaporizer, which heats herbal cannabis to 165–190 °C (329–374 °F)[48], causing the active ingredients to evaporate into a vapor without burning the plant material (the boiling point of THC is 157 °C (315 °F) at 760 mmHg pressure)[49].
Cannabis tea contains relatively small concentrations of THC, because THC is an oil (lipophilic) and is only slightly water-soluble (with a solubility of 2.8 mg per liter)[50]. Cannabis tea is made by first adding a saturated fat to hot water (e.g. cream or any milk except skim) with a small amount of cannabis[51]. Edibles, where cannabis is added as an ingredient to one of a variety of foods. Marijuana vending machines for selling or dispensing cannabis are in use in the United States and are planned to be used in Canada[52].

Pharmacology[53]

The genus Cannabis contains two species which produce useful amounts of psychoactive cannabinoids: Cannabis indica and Cannabis sativa, which are listed as Schedule I medicinal plants in the US. A third species, Cannabis ruderalis, has few psychogenic properties. Cannabis contains more than 460 compounds, at least 80 of these are cannabinoids– chemical compounds that interact with cannabinoid receptors in the brain. As of 2012, more than 20 cannabinoids were being studied by the U.S. FDA. The most psychoactive cannabinoid found in the cannabis plant is tetrahydrocannabinol (or delta-9-tetrahydro -cannabinol, commonly known as THC). Other cannabinoids include delta-8-tetrahydrocannabinol, cannabidiol (CBD), cannabinol (CBN), cannabicyclol (CBL), cannabichromene (CBC) and cannabigerol (CBG), they have less (THC).
Cannabis indica may have a CBD:
THC ratio four to five times that of Cannabis sativa. Cannabis strains with relatively high CBD: THC ratios are less likely to induce anxiety than those with a lower ratio. This may be due to CBD's antagonistic effects at the cannabinoid receptors, compared to THC's partial agonist effect. CBD is also a 5-HT_{1A} receptor agonist, which may also contribute to an anxiolytic effect. This likely means the high concentrations of CBD found in Cannabis indica mitigate the anxiogenic effect of THC significantly. The effects of sativa are well known for their cerebral high, hence its daytime use as medical cannabis, while indica is well known for its sedative effects and preferred night time use as medical cannabis.

Mechanism of action

The high lipid-solubility of cannabinoids results in their persisting in the body for long periods of time[54]. Even after a single administration of THC, detectable levels of THC can be found in the body for weeks or longer (depending on the amount administered and the sensitivity of the assessment method)[54].
A number of investigators have suggested that this is an important factor in marijuana's effects, perhaps because cannabinoids may accumulate in the body, particularly in the lipid membranes of neurons[55]. Not until the end of the 20th century was the specific mechanisms of action of THC at the neuronal level studied. Researchers have subsequently confirmed that THC exerts its most prominent effects via its actions on two types of cannabinoid receptors, the CB_1 receptor and the CB_2 receptor,

both of which are G-protein coupled receptors[56].

The CB_1 receptor is found primarily in the brain as well as in some peripheral tissues, and the CB_2 receptor is found primarily in peripheral tissues, but is also expressed in neuroglial cells[57]. THC appears to alter mood and cognition through its agonist actions on the CB_1 receptors, which inhibit a secondary messenger system (adenylate-cyclase) in a dose dependent manner. These actions can be blocked by the selective CB_1 receptor antagonist SR141716A (rimonabant), which has been shown in clinical trials to be an effective treatment for smoking cessation, weight loss, and as a means of controlling or reducing metabolic syndrome risk factors[58]. However, due to the dysphoric effect of CB1 antagonists, this drug is often discontinued due to these side effects[59].

Via CB_1 activation, THC indirectly increases dopamine release and produces psychotropic effects. Cannabidiol also acts as an allosteric modulator of the mu and delta opioid receptors[60]. THC also potentiates the effects of the glycine receptors[61]. The role of these interactions in the "marijuana high" remains elusive.

Psychoactive effects

The psychoactive effects of cannabis, known as a "high", are subjective and can vary based on the person and the method of use.

When THC enters the blood stream and reaches the brain, it binds to cannabinoid receptors. The endogenous ligand of these receptors is anandamide, the effects of which THC emulates. This agonism of the cannabinoid receptors results in changes in the levels of various neurotransmitters, especially dopamine and norepinephrine; neurotransmitters which are closely associated with the acute effects of cannabis ingestion, such as euphoria and anxiety. Some effects may include a general alteration of conscious perception, euphoria, feelings of well-being, relaxation or stress reduction, increased appreciation of humor, music (especially discerning its various components/instruments) or the arts, joviality, metacognition and introspection, enhanced recollection (episodic memory), increased sensuality, increased awareness of sensation, increased libido[62], and creativity. Abstract or philosophical thinking, disruption of linear memory and paranoia or anxiety are also typical. Anxiety is the most commonly reported side effect of smoking marijuana. Between 20 and 30 percent of recreational users experience intense anxiety and/or panic attacks after smoking cannabis, however, some report anxiety only after not smoking cannabis for a prolonged period of time[63].

Cannabis also produces many subjective and highly tangible effects, such as greater enjoyment of food taste and aroma, an enhanced enjoyment of music and comedy, and marked distortions in the perception of time and space (where experiencing a "rush" of ideas from the bank of long-term memory can create the subjective impression of long elapsed time, while a clock reveals that only a short time has passed). At higher doses, effects can include altered body image, auditory and/or visual illusions, pseudohallucinatory, and ataxia from selective impairment of polysynaptic reflexes.

In some cases, cannabis can lead to dissociative states such as depersonalization[64,65] and derealization[66], such effects are most often considered desirable, but have the potential to induce panic attacks and paranoia in some unaccustomed users[66]. Any episode of acute psychosis that accompanies cannabis use usually

abates after 6 hours, but in rare instances heavy users may find the symptoms continuing for many days[67]. When the episode is accompanied by aggression, sedation or physical restraint may be necessary[67].

While many psychoactive drugs clearly fall into the category of either stimulant, depressant, or hallucinogen, cannabis exhibits a mix of all properties, perhaps leaning the most towards hallucinogenic or psychedelic properties, though with other effects quite pronounced as well. THC is typically considered the primary active component of the cannabis plant; various scientific studies have suggested that certain other cannabinoids, like CBD, may also play a significant role in its psychoactive effects[68,69,70].

General Effects

Cannabishas psychoactive and physiological effects when consumed[71]. The immediate desired effects from consuming cannabis include relaxation and mild euphoria (the "high" or "stoned" feeling), while some immediate undesired side-effects include a decrease in short-term memory, dry mouth, impaired motor skills and reddening of the eyes[72]. Aside from a subjective change in perception and mood, the most common short-term physical and neurological effects include increased heart rate, increased appetite and consumption of food, lowered blood pressure, impairment of short-term and working memory[73,74], psychomotor coordination, and concentration.

A 2013 literature review reported that exposure to marijuana had biologically-based physical, mental, behavioral and social health consequences and was "associated with diseases of the liver (particularly with co-existing hepatitisC), lungs, heart, and vasculature"[75].

Cannabis has been used to reduce nausea and vomit-ing in chemotherapy and people with AIDS, and to treat pain and muscle spasticity[76]. According to a 2013 review, "Safety concerns regarding cannabis include the increased risk of developing schizophrenia with adolescent use, impairments in memory and cognition, accidental pediatric ingestions, and lack of safety packaging for medical cannabis formulations"[77]. The US Food and Drug Administration (FDA) maintains that the herb cannabis is associated with numerous harmful health effects, and that significant aspects such as content, production, and supply are unregulated.

Chronic health effects of cannabis use[78]

- Selective impairment of cognitive functioning which include the organization and integration of complex information involving various mechanisms of attention and memory processes.
- Prolonged use may lead to greater impairment, which may not recover with cessation of use, and which could affect daily life functions;
- Development of a cannabis dependence syndrome characterized by a loss of control over cannabis use is likely in chronic users.
- Cannabis use can exacerbate schizophrenia in affected individuals.
- Epithelial injury of the trachea and major bronchi is caused by long-term cannabis smoking.
- Airway injury, lung inflammation, and impaired pulmonary defence against infection from persistent cannabis consumption over prolonged periods.
- Heavy cannabis consumption is associated with a higher prevalence

of symptoms of chronic bronchitis and a higher incidence of acute bronchitis than in the non-smoking cohort.
- Cannabis used during pregnancy is associated with impairment in fetal development leading to a reduction in birth weight.
- Cannabis use during pregnancy may lead to postnatal risk of rare forms of cancer although more research is needed in this area. The health consequences of cannabis use in developing countries are largely unknown because of limited and non-systematic research, but there is no reason *a priori* to expect that biological effects on individuals in these populations would be substantially different to what has been observed in developed countries. However, other consequences might be different given the cultural and social differences between countries.

Marijuana acute intoxication[79]

Symptoms:

The intoxicating effects of marijuana include relaxation, sleepiness, and mild euphoria (getting high).
Smoking marijuana leads to fast and predictable signs and symptoms. Eating marijuana can cause slower, and sometimes less predictable effects.
Marijuana can cause undesirable side effects, which increase with higher doses. These side effects include:
- Decreased short-term memory
- Dry mouth
- Impaired perception and motor skills
- Red eyes

More serious side effects include panic, paranoia, or acute psychosis, which may be more common with new users or in those who already have a psychiatric disease.
The amount and effect of these side effects varies from person to person, as well as with the amount of marijuana used.
Marijuana is often cut with hallucinogens and other, more dangerous drugs that have more serious side effects than marijuana. These side effects may include:
- Sudden high blood pressure with headache.
- Chest pain and heart rhythm disturbances.
- Extreme hyperactivity and physical violence.
- Heart attack.
- Seizures.
- Stroke.
- Sudden collapse (cardiac arrest).

Treatment

Treatment and care involves:
- Preventing injury.
- Reassuring those who have panic reactions due to the drug.

Benzodiazepines, such as diazepam (Valium) or lorazepam (Ativan) may be given. Children who have more serious symptoms or those with serious side effects may need to stay in the hospital for treatment. Treatment may include heart and brain monitoring.

Prognosis

Uncomplicated marijuana intoxication rarely needs medical advice or treatment. Occasionally, serious symptoms occur. However, these symptoms are rare and usually associated with other drugs or compounds mixed in with marijuana.

Safety

Fatal overdose associated with cannabis use have not been reported as of 2008[80].

There has been too little research to determine whether cannabis users die at a higher rate as compared to the general population, though some studies suggest that fatal motor vehicle accidents and death from respiratory and brain cancers may be more frequent among heavy cannabis users. Many studies have looked at the effects of smoking cannabis on the respiratory system. Cannabis smoke contains thousands of organic and inorganic chemical compounds. This tar is chemically similar to that found in tobacco smoke[81], and over fifty known carcinogens have been identified in cannabis smoke[82], including; nitrosamines, reactive aldehydes, and polycylic hydrocarbons, including benz[a]pyrene[83].

There is serious suspicion among cardiologists, spurring research but falling short of definitive proof, that cannabis use has the potential to contribute to cardiovascular disease. Cannabis is believed to be an aggravating factor in rare cases of arteritis, a serious condition that, in some cases leads to amputation. Because 97% of subjects in case-reports also smoked tobacco, a formal association with cannabis could not be made.

If cannabis arteritis turns out to be a distinct clinical entity, it might be the consequence of vasoconstrictor activity observed from delta- 8- THC and delta-9-THC[84].

Other serious cardiovascular events including myocardial

Infarction, stroke, sudden cardiac death, and cardiomyopathy have been reported to be temporally associated with cannabis use. Research in these events is complicated because cannabis is often used in conjunction with tobacco, and drugs such as alcohol and cocaine[85].

These putative effects can be taken in context of a wide range of cardiovascular phenomena regulated by the endocannabinoid system and an overall role of cannabis in causing decreased peripheral resistance and increased cardiac output, which potentially could pose a threat to those with cardiovascular disease[86].

Detection of cannabis-consumption drug testing

THC and its major (inactive) metabolite, THC-COOH, can be measured in blood, urine, hair, oral fluid or sweat using chromato-graphic techniques as part of a drug use testing program or a forensic investigation of a traffic or other criminal offense[87]. The concentrations obtained from such analyses can often be helpful in distinguishing active use from passive exposure, elapsed time since use, and extent or duration of use. These tests cannot, however, distinguish authorized cannabis smoking for medical purposes from unauthorized recreational smoking[88].

Commercial cannabinoid immuno-assays, often employed as the initial screening method when testing physiological specimens for marijuana presence, have different degrees of cross-reactivity with THC and its metabolites[89]. Urine contains pre-dominantly THC-COOH, while hair, oral fluid and sweat contain primarily THC[87]. Blood may contain both substances, with the relative amounts dependent on the recency and extent of usage[87].

The Duquenois-Levine test is commonly used as a screening test in the field, but it cannot definitively confirm the presence of cannabis, as a large range of substances have been shown to give false positives. Despite this, it is common in the United States for prosecutors to seek plea bargains on the basis of positive D-L tests, claiming them definitive, or even to seek conviction without the use of gas chromatography confirmation, which can

only be done in the lab[90]. In 2011, researchers at John Jay College of Criminal Justice reported that dietary zinc supplements can mask the presence of THC and other drugs in urine. Similar claims have been made in web forums on that topic[91].

Gateway drug Theory

Since the 1950s, United States drug policy has been guided by the assertion that cannabis use increases the probability of trying "harder" drugs[92]. The hypothesis has endured as one of the central pillars of anti-cannabis drug policy in the United States[93], and as such the validity and implications of the hypothesis are hotly debated[92]. Almost two-thirds of the poly-drug users in the "2009/10 Scottish Crime and Justice Survey" used cannabis[94].

Some studies state that while there is no proof for the gateway hypothesis[95], young cannabis users should still be considered as a risk group for intervention programs[96], while other findings indicate that hard drug users are likely to be poly-drug users, and that interventions must address the use of multiple drugs instead of a single hard drug[97].

Another gateway hypothesis covers that a gateway effect may be caused by the "common factors" involved in using any illegal drug. Through the illegal status of cannabis, users are more likely to be subjected to situations allowing them to acquaint with individuals using or selling various illegal drugs[98,99]. Utilizing this argument some studies have shown that alcohol and tobacco may additionally be regarded as gateway drugs[100], however, a more parsimonious explanation could be that cannabis is simply more readily available (and at an earlier age) than illegal hard drugs. In turn alcohol and tobacco are easier to obtain at an earlier point than is cannabis (though the reverse may be true in some areas), thus leading to the "gateway sequence" in those individuals since they are most likely to experiment with any drug offered[63].

"Notice that none of these interpretations involves a specific pharmacological effect of the sort drug warriors seem to have in mind when they suggest that pot smoking primes the brain for cocaine or heroin. As a National Academy of Sciences panel observed in a 1999 report, 'There is no evidence that marijuana serves as a stepping stone on the basis of its particular drug effect.' Last year the Canadian Senate's Special Committee on Illegal Drugs likewise concluded that 'cannabis itself is not a cause of other drug use. In this sense, we reject the gateway theory'[101].

Legal status

Since the beginning of the 20th century, most countries have enacted laws against the cultivation, possession or transfer of cannabis[102].

These laws have impacted adversely on the cannabis plant's cultiva-tion for non-recreational purposes, but there are many regions where, under certain circumstances, handling of cannabis is legal or licensed. Many jurisdictions have lessened the penalties for possession of small quantities of cannabis, so that it is punished by confiscation and sometimes a fine, rather than imprisonment, focusing more on those who traffic the drug on the black market. In some areas where cannabis use has been historically tolerated, some new restrictions have been put in place, such as the closing of cannabis coffee shops near the borders of the Netherlands[103], closing of coffee shops near secondary schools in the Netherlands and crackdowns on “Pusher Street” in Christiania, Copenhagen in 2004[104,105].

Some jurisdictions use free voluntary treatment programs and/or mandatory treatment programs for known frequent users. Simple possession can carry long prison terms in some countries, particularly in East Asia, where the sale of cannabis may lead to a sentence of life in prison or even execution. More recently however, many political parties and non-profit organizations are working on the legalization of medical cannabis and/or legalizing the plant entirely, with some restrictions have emerged.

In December 2012, the U.S. state of Washington became the first state to officially legalize cannabis in a state law (Washington Initiative 502) (but still illegal by federal law)[106], with the state of Colorado following close behind (Colorado Amendment 64)[107]. On January 1, 2013, the first marijuana "club" for private marijuana smoking (no buying or selling, however) was allowed for the first time in Colorado[107]. The California Supreme Court decided in May 2013 that local governments can ban medical marijuana dispensaries despite a state law in California that permits the use of cannabis for medical purposes. At least 180 cities across California have enacted bans in recent years[108].

In December 2013, Uruguay became the first country to legalize growing, sale and use of cannabis[109].

Islamic rulings:

Muslim jurists began to deliberate on cannabis effects nearly six centuries after *Hijrah* (13th century C.E.) after the Tatars' invasion on the Muslim countries. Prior to that time, the cannabis problem was not known to Muslim scholars[110].

In view of cannabis effects on human mind and body i.e. clouding of thinking and associated psychosocial problems, there was jurists' consensus, from all schools of Islamic thought, to classify cannabis as an intoxicant (*khamr*)[110-113], and to apply the rulings of alcohol on cannabis, i.e. prohibition (*tahrim*), and punishment (by flogging).

Ibn Taymiyah[110], Ibn al-Qayyim[111], Badr al- Din al-Zarkashy[112] and *Imam* al-Nawawi[113] wrote in detail about the problem, and its rulings.

Several *ahadith* were cited, including the following:

"كل مسكر خمر وكل خمر حرام"

"Every intoxicant is *khamr* (alcohol-like) and every *khamr* is *haram* (prohibited)[114].

"الخمر ما خامر العقل"

"*Khamr* is whatever clouds the mind"[115].

وعن أم سلمة:"نهى الرسول (ﷺ) عن كل مسكر ومفتر"

The Prophet (ﷺ) prohibited any intoxicant and languid-causing material[116].

Al-Sayyid Sabiq, in his book: *Fiqh al-Sunnah*, elaborated on the opinion of the above scholars, and added a *fatwa* (religious decree) issued by the Grand *Mufti* of Egypt (*Mufti al-Diyar al-Misriyyah*), *Shaikh* Abdul Majid Salim, that cannabis (hashish) is *haram*[117].

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QAT ABUSE IN YEMEN: SOCIO-ECONOMIC AND HEALTH PERSPECTIVES

*Husni Al-Goshae**

Abstract:

Qat (or Khat) is an evergreen shrub named Catha Edulis which belongs to the family: Gelastraceae. The plant grows in Ethiopia, Kenya, Somalia, South Africa, Madagascar, and was imported to Yemen from East Africa approximately 700 years ago. Over the past several decades, the plant became widely grown in Yemen and occupied the fertile land that was traditionally cultivated by life sustaining crops for Yemeni people. Approximately 58.5% of agricultural lands are currently planted by Qat, leaving the rest for grains, vegetables, fruits …etc. What makes the matter more serious is the amount of water needed to grow this plant. In a country with limited water resources, like Yemen, more than 60% of this water is consumed for Qat plantation, drawing the country into major economic and social problems.

In this presentation, various Qat-related problems with their pathophysiolgoic basis are discussed, with special attention to the various health hazards that affect many body systems. Available Islamic Jurisprudence opinion will be outlined.

Keywords: Qat, Qat-induced medical problems, Catha Edulis, Yemen, addiction.

Introduction:

Qat (Khat) belongs to the Catha Edulis plant family. The active ingredients are three main alkaloids, namely: cathinone, cathine and ephedrine[1]. Cathinone is an amphetamine-like substance that induces release of catecholamines in the peripheral and central nervous systems. The main metabolites of cathinone are norpseudo-ephedrine and ephedrine.

Both substances have sympathomimetic activities, and stimulant properties on the central nervous system (CNS), while cathinone has the predominantly peripheral effects[1]. Cathinone is present in the fresh leaves of the plant, especially when consumed within 24 hours after harvesting. Both cathinone and cathine have strong CNS stimulant affects[2]. However, cathine has much less stimulant effect on the CNS than cathinone. The World Health Organization (WHO) categorized Qat as a drug in 1973. The concentration of the Qat alkaloids vary according to the region in which Qat is grown. Cathinone concentration is 3.3% in Yemeni Qat, and 14% in Kenyan Qat. The effects of cathine on the CNS as a stimulant are much less than that of cathinone.

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The Qat shrub is an evergreen plant grown on a wide scale in Yemen, the East African countries: Kenya, Ethiopia, Somalia and Djibouti. Qat is primarily consumed in these countries but in addition, Qat is also consumed in some European countries, such as Britain and some states in USA, where migrants from these countries reside[3,4].

In Yemen, Qat plantation occupies 58.5% of the total cultivated land, which leaves only 41.5% of land to other crops that represent essential food items such as grains, vegetables, and fruits. Moreover, Qat consumes around 60% of water, in a country that suffers from scarcity of water. Almost 70-80% of the Yemeni population of 25 million chew Qat on daily basis, with exacerbation of consumption on holidays and special occasions. The fresh leaves of the shrub are usually chewed, especially during social and cultural gatherings, and held in the lower buccal pouch as a bolus for long hours, to enjoy its pleasurable stimulant properties. The majority of Qat chewers are16 to 60 years old but some chewers are as young as 7-15 years.

In Yemen, which is considered among the world poorest countries, 2-3 billion dollars are spent yearly on Qat consumption[5].

Over the past 2-3 decades, Qat cultivation escalated exponentially. Almost 20% of the Yemeni work force is involved in the Qat business. As a locally produced and consumed crop, Qat generates no national income from export, and therefore it represents economic waste. Qat consumes most of the families' income, with significant socio-economic consequences, including, but not limited to family fragmentation and devious means to secure the financial burdens of Qat consumption. The Yemeni government sought to undertake measures to deal with the escalating Qat phenomena since 1975. Qat chewing was banned in all governmental institutions and during working hours. Taxes were levied against various Qat-related businesses. Unfortunately such measures proved ineffective and fruitless to curtail this deep-rooted social habit and its consequences.

Medical consequences of Qat:

Over the years, Qat consumption was shown to cause many health problems. Most body systems are adversely affected, including the central nervous system (CNS), cardiovascular (CVS), gastrointestinal (GIT), and genitor-urinary (GUT) systems. As Qat is mostly consumed by chewing, periodontal health is adversely affected.

Moreover, there are added toxic sequelae of the frequently uncontrolled and unregulated practices of farmers in using fertilizers, insecticides and other chemicals to increase Qat production and to hasten marketing of the fresh plant. Such practices increase various damaging effects on various body systems.

Effects of Qat on the CNS

These follow 5 stages:

Stage 1: Starts within 30 minutes following chewing Qat leaves. It is characterized by hyperactivity, alertness, talkativeness, sense of euphoria and wellbeing. This stage lasts 60-90 minutes. These effects are similar to the effects of amphetamines on the CNS[2].

Such temporary effects are the cause for the prevailing beliefs that Qat improves work performance, counteracts fatigue and helps students in preparing for examinations[4].

Stage 2: Also called: the imagination and problem-solving stage. During this stage Qat chewers feel they are able to solve most problems, whether personal, social or business-related. This stage lasts about 2-3 hours.

Stage 3: The stage of silence. This starts 5-6 hours from the beginning of Qat chewing. Talking stops, silence prevails with excessive smoking, feelings of lack of safety, sense of fear, anxiety accompanied by auditory and visual hallucinations. Frequently, the individual starts talking to himself.

Stage 4: Stage of depression. This stage is characterized by headache, feelings of loneliness, doubt towards surrounding people, aggressiveness and insomnia. This stage starts after the Qat chewer throws away the long-chewed Qat bolus from his mouth.

Stage 5: The final stage starts few hours prior to dawn. It is characterized by generalized weakness, relaxation, laziness, desire to sleep, which is uncomfortable, with bad dreams, morning depression and aggressiveness[2].

Qat and psychosis:

Excessive and prolonged Qat chewing may cause psychosis and schizophrenia which could be severe[6].

Two types of psychosis were described in the literature:

1.Schizophrenic psychosis, described in heavy Qat chewers, with paranoid delusions, sense of fear (phobia), lack of adaptation to environment, isolation tendency, hearing hallucinations, and aggressive behavior. These symptoms may disappear on stopping Qat consumption, but tend to recur if the habit is resumed[7].

2. Manic psychosis, with hyperactivity, loud shouting, speech difficulty, delusions, flight of ideas, euphoria and anger. These symptoms usually subside spontaneously when Qat is discontinued [7,8].

Qat effects on CVS:

Clinical studies showed cathinone to cause CVS complications. Norepinephrine, the neurotransmitter of cathinone, has sympathomimetic effects, with vasoconstriction that is dose-dependent[9,10,11]. Elevation of blood pressure and palpitation, cold extremities and sweating, are frequently encountered during and after sessions of Qat chewing, and were ascribed to vasoconstrictive effects of cathinone. These effects were documented in animal experiments[11,12].

Acute myocardial infarction (MI) was linked to Qat consumption. Qat is considered an independent, dose-related risk factor for MI[13].

Qat effects on GIT:

Several effects of Qat were reported on the GIT. Large doses could cause hyperacidity, GI mucosal injuries and aggravation of gastric and duodenal ulcerations[14]. Other GIT complications include esophagiititis, gastritis, delay of intestinal absorption, and development of oral keratotic white lesions at the site of chewing (*tachzeen*). Cytotoxic effects on the hepatic and renal cells were observed[15]. The Advisory Council on the Misuse of Drugs (ACMD) report, 2013[16] revealed proven incidence of acute hepatitis. As mentioned previously, these complications of Qat consumption on GIT and other body systems, are greatly enhanced by the toxic effects of chemicals used as insecticides and fertilizers to promote Qat productivity as farmers believe. Some of these effects may be carcinogenic[17].

Effects of Qat on GUT:

The early stages (1 and 2) of Qat chewing, are usually accompanied by great increase in sexual desire. Although this increase in libido persists to the subsequent stages of Qat chewing (stages 3-5), the feelings of depression, headache and impotence predominate[18]. The seminal fluid is dis-

charged of the urethra involuntarily among most Qat chewers. The effect is ascribed to inhibitory effects of cathinone on the sphincters of seminal vesicles[18].

There are some reports on the relationship of Qat chewing to an increase in urinary bladder dysfunction[19]. Qat may increase the possibility of urinary tract stone formation, but this needs further investigations.

Periodontitis and oral health:

Heavy, long- term Qat chewing is an independent risk factor for periodontal diseases with adverse affects on teeth, gums, clinical attachment loss and other aspects of oral hygiene[20].

Is there Qat addiction or dependence?

Cathinone, one of the main two constituents of Qat, with its major metabolite: norpseudoephedrine, leads to the dependence effects of Qat[1]. It was, however, observed that Qat chewers experience no significant withdrawal symptoms when they stop Qat. This is frequently observed when Qat chewers travel abroad and stay away from the habit. This observation led some researchers to conclude that dependence on Qat is mainly psychological[21], and people are able to discontinue the habit easily, if intension and willpower are exercised. Some people, in such situations may have minor uncomfortable symptoms, such as bad dreams, feeling hot sensations in extremities, lethargy and sense of missing Qat chewing. Tolerance to the central amphetamine-like effects have been frequently described[22].

There are no significant withdrawal symptoms comparable to those related to alcohol or other narcotics.

Socio-economic consequences:

In Yemen, Qat causes approximately 20 million lost hours in work productivity every day. It was estimated the Yemeni economy suffers about 2-3 billion USD every year. These estimated statistics were obtained in 2013 from local NGOs that are functional in Yemen to combat Qat growing and consumption. One of those NGOs is "*Erada (willpower) and* Yemen without Qat" Organization.

Similar decreases in economic productivity were also reported from Ethiopia, Somalia, Uganda and Kenya[23]. In some African countries it was reported that Qat may push its users to inappropriate behaviors, such as bribery, cheating, stealing, prostitution and other criminal behaviors[24].

The other significant and alarming economic problem is the increased water consumption of Qat agriculture. In Yemen, with sparse drinking water supplies, more than 60% of available water, underground or otherwise, is consumed by Qat cultivation. Farmers prefer Qat cultivation over other life supporting crops, in view of its biannual profitable cultivation pattern, and ease of marketing in local markets. These individual benefits are in contrast to the major harms on the national Yemeni economy in view of lack of income generation of hard currency as Qat is not exported.

Islamic perspectives:

Qat consumption was discussed by *Shari'ah* scholars and *Fatwa* forums inside and outside Yemen.

In view of various significant health, psychosocial and harmful economic consequences of Qat consumption, and in view of scientific stand-points of the World Health Organization considering Qat as a narcotic and addicting drug, most of Yemeni Islamic scholars issued *Fatawa* that forbid Qat consumption considering it as (*Haram*)[5].

These scholars include:

- Sheikh Abdulwahab Al-Dielmy, former minister of justice.

- Sheikh Mohammad Al-Sadak- Al-Eman University, Sana'a.
- Sheikh Mohammad Al-Imam, and others.

An official standpoint from the Yemeni government and the official *Fatwa* authorities, however, was not adopted sofar, in view of lack of determination and resolve.

In Saudi Arabia, the *Fatwa* Institution issued *Fatwa* number 2159 dated 25/10/1398 Hijri (1977), in which the cultivation, selling, buying and chewing of Qat is forbidden (*Haram*)[5].

A similar decision was undertaken by the International Islamic *Fiqh* Academy held in Madina-Saudi Arabia in 1402 Hijri. They recommended to punish Qat chewers and traffickers on the same basis adopted by *Shari'ah* to other narcotics[25].

Concluding remarks:

Qat in Yemen, represents a major obstacle to socio-economic development, in addition to its significant health consequences.

It affects physical, mental and psychological health of major population strata, especially in the age groups that represent the productive work force of the country.

These combined parameters make it prohibited "*haram*" to be consumed by Muslims.

To date, the proper constructive response from governmental, political, social, religious and educational leadership has been ineffective, leading to exacerbation of this multifaceted problem. All concerned individuals, societies and organizations, official or community-based, are called upon to lay down proper and constructive planning and collaboration to combat this problem by all means.

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BEHAVIORAL ADDICTION

*Mehmet Dinc**

Abstract:

Until recent years, the general public have mostly seen behavioral addictions like innocent habits and mental health professionals have ignored it as they are so focused on substance abuse problems. This fact makes it difficult to find funding sources for research or even to take a class at a university on behavioral addiction. Therefore, behavioral addiction has been underestimated, undertreated and understudied. For example, gambling addiction was first mentioned in the medical literature in the early 1800s but it could not find a place in the Diagnostic and Standardized Manual of Mental Disorders (DSM) until 1980 and still it has been put under impulse control disorder instead of under addiction until DSM-V. However, major changes in all aspects of life, mostly in the fields of scientific research, have resulted in increased awareness of behavioral addiction as an entity and made it more visible now. Such changes have triggered new types of addiction like Internet addiction and new forms of old addictions such as online gambling and Internet pornography.
General information about addiction will be presented and then information about what we should know and what we should do about behavioral addiction will be discussed.

Keywords: Addiction, Behavioral Addiction, Gambling Addiction, Sex Addiction, Internet Addiction, Shopping Addiction.

Allah (ﷻ) says in the Glorious Quran:

"*...Make not your own hands contribute to your destruction...*"[1].
"*...nor kill yourselves...*"[2].

The Prophet Muhammad (ﷺ) said:
"There should be neither harming, nor reciprocating harm"[3].

"To be dependent, even if involuntarily, is always a personal choice. Nothing and no one can force you into dependency, only you can do that to yourself! … Being dependent is not the effect of a contract. It is not related to any role nor is it the result of one's social class. Dependency is the consequence of lowering your self-esteem, abdicating your dignity. It is what happens when you allow your being to be crushed… Dependency is a disease of Being! … It is the result of one's incompleteness…to be dependent means to cease believing in oneself. To depend means to stop dreaming"[4].

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Definition of Addiction

Defining of addiction, especially from the perspective of behavioral addiction, is not easy because there is no clear distinction between use, abuse and addiction. Moreover, the differences between addictions, habits, interest, obsession, dedication and so on are mostly blurred. For this reason, some researchers like Vaillant[5] offered that instead of searching for a ready definition of addiction, we consider it like a mountain or season, when confronted with these situations, we know these things implicitly. However, to work on addictions as a doctor, psychiatrist, psychologist, social worker, or a researcher, we need a functional definition of addiction. Following are the three different definitions of addiction.

"Addiction is a brain disease resulting from the interaction among salience/ reward, learning/ memory/ conditioning and a lowering inhibition/control"[6].

Addiction is a "Behavior that is motivated by emotions ranging between the **C**raving to **C**ompulsion spectrum; Continued use in spite of adverse consequences and Loss of **C**ontrol" [7].

"All addiction is characterized by a loss of control, preoccupation, compulsivity, narrowing of interest, dishonesty, guilt and chronic relapse"[8].

Definition of Behavioral Addiction

According to Griffiths[9] who is one of the most prominent pioneers in behavioral addiction, any behavior, which fulfills six components, is an addictive behavior. The six components are: salience, mood modification, tolerance, withdrawal symptoms, conflict and relapse. Salience means the behavior becomes the most important thing in anyone's life so that the person becomes totally preoccupied with the behavior mentally if not physically. Mood modification means some specific behaviors are used for a consistent and reliable shift in the mood state. Sometimes, it might be to get high or to be aroused but sometimes it might be the total opposite, i.e. to numb or to distress. Tolerance means that to get the same effects on the person's mood modification, he/she needs to use this behavior more and more day by day. Withdrawal symptoms mean experience-ing some psychological symptoms, for example increased moodiness or storability and physiological problems, such as sweaty hands, nausea, stomach cramps, headaches and anxiety attacks, when the addictive behavior is prevented. Conflict means having repetitive problems in his family life or work life because of the addictive behavior and even though he wants to cut down and stop he cannot do it because he lost his control on the behavior. Relapse means it does not matter to give up from any addiction for some time because as soon as an addictive person starts he does not start from the beginning but from the center of addiction circle.

Risk Factors

Before pointing out any factors which may lead to addiction, I would like to share a letter which was written by Carl G. Jung to Bill Wilson who is one of the founders of Alcoholics Anonymous, just before Jung's death. In the letter Jung describes the need for alcohol (or any other addiction) as being similar to spiritual thirst. Meanly, if anyone cannot reach wholeness with spirituality, he may look for other ways to feed his thirst and most of the time he uses addiction to squinch his thirst. Wallace[10] explained spiritual thirst by these concepts; intense feelings of alienation, apartness, emptiness, meaninglessness, and lack of purpose in living. Therefore, spirituality might be a prevention and treatment for any addiction at the same time. Jung stated his ideas with these words in the letter:

"……..
His craving for alcohol was the equivalent on low level of the spiritual thirst of our being for completeness, expressed in medieval language: the union with God.
How could one formulate such an insight in a language that I misunderstood in our days?
The only right and legitimate way to such an experience is, that it happens to you in reality and it can only happen to you when you walk on a path, which leads you to a higher level of understanding. You might be led to that goal by an act of Grace or through a personal and honest contact with friends, or through a higher education of the mind beyond the confines of mere rationalism. I see from your letter that Roland H. has chosen the second way, which was, under the circumstances, obviously the best one.
I am strongly convinced that the evil principle prevailing in this world, leads the unrecognized spiritual need into perdition, if it is not counteracted either by a real religious insight or by the protective wall of human community. An ordinary man, not protected by an action from above and isolated in society cannot resist the power of evil, which is called very aptly the Devil. But the use of such words arouse so many mistakes that one can only keep aloof from them as much as possible……..
You see, Alcohol in Latin is "spiritus" and you use the same word for the highest religious experience as well as for the most depraving poison. The helpful formula therefore is: spiritus contra spiritum"[11].
Another important reason for being addicted to any behavior is lack of skill to cope with life problems. Therefore, most addicted people use the behavior as an automatic stress reliever. Surely people show some behaviors to calm down, feel relaxed and add some pleasure to their lives. However, when it becomes the only choice to calm down, addiction is an issue. Moreover, after some time of addiction an important question arises that is whether life problems have caused the addiction or the addiction has caused the life problems.
Addicted people mostly use two techniques about their addictions to persuade themselves. First, they underestimate their use even if they experience so many times that their use causes major problems in their lives, and second, they believe that they can stop whenever they want.
Comparing substance addiction to behavioral addiction, substance addiction looks more harmful than behavioral addiction. Although substance addiction has stronger effects on the human brain than behavioral addiction, behavioral addiction has a big impact on low self-esteem, depression, anxiety, trauma, distress, conflict in marriage and family, poor academic and job performance and it can even lead to suicide and homicide[6].

Common Types of Behavioral Addiction

Allah (ﷻ) says:
"*Say: Not equal are al-Khab'ith (all that is evil and bad as regards things, deeds, beliefs, people, food, etc.) and al-Tayiiyib (all that is good as regards things, deeds, beliefs, people, food, etc.), even though the abundance of al-Khabith (evil) may please you. So, fear Allah much [(abstain from all kinds of sins and evil deeds which He has forbidden) and love Allah much (perform all kinds of good deeds which He has ordained)], O men of understanding in order that you may be successful*"[12].
There are many types of behavioral addiction: From work to exercise and from love to eating, so many behaviors have been seen as an addiction. There is even an alphabetic list in some websites about types of addiction that name more than 100 different types of addiction.

However, this kind of categorization received many criticisms with accusations of creation of false epidemics and creation of diagnostic inflation. Therefore, a line has to be drawn between a personal lifestyle and a psychiatric pathology to understand and work on behavioral addiction, even it might be so difficult. This paper will focus on Internet addiction as the model of behavioral addiction, because of three reasons:

1. It is impossible to cover all behavioral addiction that are listed in the literature.
2.The most common types of behavioral addiction are sub-groups of Internet addiction . Moreover, so many people become easily addicted to some behavior on the Internet and so many behavioral addicted people use Internet to feed their addiction, whatever they are.
3. Internet addiction has spread like wildfire all around the world regardless of religion, nationality and education and has brought so many devastating results that have never been seen before. The following examples may give some idea about the results:

In 2001, the murder of his own brother by a middle school student, mimicking a scene from an internet online game. In 2005, a person jumped off from a building after being forced to exit the league by the game manager. In 2007, a person learned how to commit murder and conceal the body from computer games. A middle school student murdered his grandmother in 2010, and headed to internet café without a blink, after murdering the mother for being annoying"[13].

Internet Addiction

People use the Internet for a reason or without any reason. They use it for a reason like sex, gambling, game, chat, shopping etc. They use it without any reason because they might not have something better or more exciting to do than using the Internet. Internet is exciting for many people because of its affordability, accessibility and anonymity. It is cheaper than any other leisure activity, it can be used anytime regardless of day or night, and people use it to become or pretend to be who they want to be. Furthermore, whatever they want (sex, gambling, shopping etc.), they can have access to it without any limitations. Therefore, Internet usage has increased enormously in the last years all around the world. From 1980's to the year 2000, technology, mostly the Internet, was praised and people were happy about the change that Internet has made in their lives. However, after 2000, people have seen some real and dangerous negative effects of the Internet, mostly on children. Then researches have started studying Internet use, abuse and addiction. Statistics about Internet addiction can be easily found in the literature[14-17].

In the following part, prevention of internet abuse and addiction will be discussed and some possible solutions will be offered. However, before the prevention part, some short information about treatment will be given.

Treatment

Since behavioral addiction has been ignored for so many years, there are only few specifically designed treatment programs for behavioral addiction relative to the vast number of treatment programs for substance addiction. Moreover, there is no medication approved by any official authority around the world for treatment of behavioral addiction. However, some researches show that psychosocial treatment methods, like the twelve steps approach and pharmacological treatment, such as naltrexone, which are used for substance abuse and related disorders works for behavioral addiction as well[6,18]. The best

way to deal with behavioral addiction is surely prevention.

Because behavioral addiction was mostly neglected until recent years and hence there are no sufficient experts, researches, institutions and treatment models. Moreover, completion rate of treatment and treatment success for addiction are less than most of the other psychopathologies.

Prevention

First of all, it is possible to prevent people from behaving in a certain way as long as the reasons of the behavior are understood. For behavioral addiction or Internet addiction 5 possible reasons have been seen.

1. Psychopathology: There is a strong link between psycho-pathology and addiction. People who have genetic vulnerability to any addiction can develop behavioral addiction easier than those who do not have it. On the other hand, people who suffer from any psychopathology can develop behavioral addiction easier than those who do not have it. Particularly, children and adolescents who suffer from Attention Deficit Hyperactivity Disorder (ADHD), social anxiety and depression are more vulnerable to addiction than their peers[19]. Therefore, parents and teachers should be aware of symptoms and signs of psycho-pathologies and should not be reluctant to seek assistance from mental health professionals if needed. On the other hand, children and adolescents should be taught to use Internet with time limit and responsibility.
2. Physical energy: Everyone, in particular, children and adolescents need to spend their energy into something. Because of the modern lifestyle, that was brought by technology (cars, machines,… etc.), many people, mainly in cities, cannot spend their physical energy. For children and adolescents, they mostly sit during the way to their school and they sit during the class time for 5 to 8 hours and they sit in front of TV or their personal computer when they are home until bedtime. However, their bodies need to spend energy in some way. If they cannot find a healthy way to spend their physical energy, they spend it by visiting pornography websites or online sex sites or playing violent video or online games. Therefore, regular physical activity should be in everyone's life especially children and adolescents' lives.
3. Expressing himself: Everyone needs to express himself by saying something or doing something. Sometimes he needs to express his feelings; sometimes he needs to express his thinking. Most people cannot motivate themselves by their jobs and therefore they cannot express themselves in their works. Moreover, most people prefer to watch TV, read newspaper or visit websites rather than listen to other people. For this reason, if anyone needs to express himself by saying or doing something, it becomes easier to find a place or person on the virtual life than real life. However, no virtual relationship can substitute real life needs.
4. Socializing: Although the world and cities have become more crowded day-by-day, people become lonelier and socially isolated than ever before. However, one of the basic needs of human beings is socializing. Building a relationship with others, meeting new people, talking, sharing, smiling etc. is essential for the psychological makeup of humans. Un-fortunately, it is a fact that many people have lived so many years in the same apartment house or same neighbourhood but never know anything more than

names or sometimes not even the names of other residents or neighbours. In recent years, this became a reality for families as well. People have their spouses, children, father or mother but they do not know about each other more than anyone else who follows them on Facebook or Twitter. Therefore, new ways to build new relationships or strengthening the existing ones should be created to prevent online socializing.

5. Meaning: Most of online users or addictive people use the Internet or any behavior pathologically because they do not have anything better to do than surfing on the net, chatting, gambling, playing games or visiting porn websites. They do not have any good reason to stop behaving in that way. They are bored with their lives and want to do something joyful without any effort or risk. Thus, without meaning in the life or doing something meaningful, there is no reason not to become addicted to something. To prevent addiction, a number of significant organizations, works, gatherings should be increased and people will learn to make their lives more meaningful. Then they will have an answer for the question why they should not become addicted to something.

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ADDICTION AND SUBSTANCE ABUSE IN PREGNANCY

Hassan M. Harirah and Sahar E. Donia*

Abstract:

Prevalence of addiction and substance abuse by women of childbearing age has increased markedly over the past three decades. In the United States, about four percent of women who are pregnant use some type of illicit drugs. Multiple risk factors exist with maternal addiction and substance abuse and the risks to the fetus or neonate vary depending on the type of substance being abused. Prenatal exposure to substances of abuse has been associated with serious harm to the mother and her fetus, and without intervention, the deleterious effects of these substances could persist throughout the child's life. Although substance abuse treatment during pregnancy improves maternal and neonatal outcomes, identifying addiction and substance abuse in pregnancy can present a significant clinical challenge and often remains under diagnosed. In this article, we discuss the major categories of drugs/substances that are commonly abused in pregnancy and evaluate the adverse effects these substances may have in the preconception time period, during pregnancy, and the postpartum period.

Keywords: Addiction, pregnancy, illicit drugs, tobacco, marijuana, alcohol, opioids, cocaine, and amphetamines, barbiturates, benzodiazepines.

Introduction:

The prevalence of addiction and substance abuse by women of childbearing age has increased markedly over the past three decades[1]. In the United States, about four percent of women who are pregnant use some type of illicit drugs, like cocaine or marijuana. Many more abuse legal intoxicating substances prior to the birth of the baby, such as alcohol or tobacco. A recent self-reporting survey by the National Survey on Drug Use and Health (NSDUH) from 2002–2010 reported a substantial increase in substance abuse among pregnant women. The rates in 2010 were 16.2%, 7.4%, and 1.9% in women aged 15-17, 18-25, and 26-44 respectively[2]. Prenatal exposure to substances of abuse has been associated with serious harm to the fetus, and without intervention, the deleterious effects of these substances could persist throughout a child's life. Elucidating the individual effects of in-utero exposure to substances of abuse during pregnancy is complicated by multidrug use, including alcohol and tobacco. Evidently, substance abuse during pregnancy has been associated with low birth weight, preterm birth, smaller head circumference, shorter birth length, poor neuro-developmental outcomes, and lower Apgar scores[3-6]. Such poor neonatal outcomes also lead to increased health care costs for the neonate and mother[7]. In addition, an increased incidence of developmental, conduct, and attention deficit disorders, and predisposition to use drugs in the offspring has been documentted[8,9].

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Multiple risk factors are associated with maternal addiction and substance abuse including young age, low socioeconomic status, lack of prenatal care, history of psychological or psychotic illness, history of neglect, history of sexual or physical abuse, peer pressure, easy access, and lack of knowledge of the adverse effects abuse substances have on fetal development[10].

Risks to the fetus or neonate vary depending on the type of substance being abused which can include preterm delivery, low birth weight, birth defects, conditions such as fetal alcohol syndrome, mental retardation, neonatal seizures secondary to substance withdrawal, and very often death due to premature delivery. Substance abuse treatment during pregnancy improves maternal and neonatal outcomes[11,12]. Although pregnancy can be a motivating factor for entering substance abuse treatment, pregnant women face barriers both to treatment initiation and completion[13]. Identifying addiction and substance abuse in pregnancy can present a significant clinical challenge and often remains under diagnosed[3]. Pregnant women may be less likely to enter substance abuse treatment due to fear of losing custody of their children, prosecution, alienation from society or lack of child care, insurance, or economic means.

Similarly, despite the benefits of treatment during pregnancy, pregnant women may be at a higher risk of attrition compared with the general population. Similarly, certain factors among pregnant women have been associated with an even lower likelihood of treatment completion, including age, race, peer deviance, lack of employment, and prior experiences with child protection services[11].

The goal of this article is to identify the major categories of drugs /substances that are commonly abused in pregnancy and evaluate the adverse effects these substances may have during the preconception time period, pregnancy, and the postpartum period. In addition, we will review general guidelines regarding the management of high risk pregnancies in substance abusing mothers.

These guidelines primarily address the identification and management of teratogenic exposure, poor maternal nutrition, intra-uterine growth restriction (IUGR), placental insufficiency, labor management, and maternal/ neonatal withdrawal symptoms.

TOBACCO:

Active and passive tobacco smoking presents major risks to human health. Smoking contributes to the development of various human cancers, respiratory illnesses, and other diseases. In the United States, tobacco smoking is the leading preventable cause of death and each year 480,000 deaths (one out of five) are caused by tobacco-related diseases[1]. Among child-bearing age women, there is an increased prevalence of smoking particularly in the youngest population.[2]In addition, the lower the level of education achieved, the greater the risk of being a current smoker[14]. Tobacco users also have shown an increased risk for infertility and dysmenorrhea[15]. Therefore, every effort should be made to identify smokers prior to pregnancy and provide intervention to enhance the likelihood of smoking cessation. Pregnancy can be also a significant motivator to stop or reduce smoking. The most recent available statistics on tobacco use in pregnancy report that 16.4% of pregnant women continue to smoke during their pregnancy[2]. The prevalence of tobacco smoking in pregnant women differs between racial and ethnic groups; 19.8% in African Americans, 24.4% in Caucasians, and 5.8% in Hispanics[16]. Tobacco is associated with a higher rate of adverse maternal and fetal outcomes and has a clearly demons-trated dose-response relationship[10]. In the first trimester, these risks include an 2-5 fold increased risk of spontaneous abortion and an 1.5-2.5 fold increased risk of ectopic pregnancy. In the second and third trimesters,

there is an increased risk of placental insufficiency, low birth weight, fetal growth restriction, and preterm delivery (1.2 to 16 folds)[15]. When tobacco is smoked, a mixture more than 4,000 chemicals are produced and at least 43 of these chemicals are known carcinogens[17].

Nicotine is principally responsible for the addiction to tobacco as a result of the interaction between the compound and nicotinic acetylcholine receptors (nAChRs). This interaction activates the reward centers in the central nervous system. Nicotine receptors are distributed in many areas of the brain.[18] Nicotine readily crosses the placenta, it can reach concentrations in fetal blood and amniotic fluid that are much higher than maternal plasma levels, exposing the fetus to toxic effects[19]. Women who smoke are more likely to have a low birth weight baby. Infants born to women who smoke during pregnancy are 200 to 300 grams lighter[15]. Furthermore, nicotine causes impaired fetal oxygen delivery, resulting in abnormal gas exchange within the placenta and activation of the sympathetic nervous system, increasing the fetal heart rate and causing a reduction in fetal breathing movements[20]. Carbon monoxide is a major by-product of cigarette smoking that can cause harm to the mother and fetus. Carbon monoxide crosses the placenta and can be detected in the fetal circulation at a level 15% higher than in the maternal circulation[21]. Carbon monoxide diminishes tissue oxygenation via competitive inhibition with oxyhemoglobin, causing decreased availability of oxygen to the fetus[19]. Approximately half of women who quit smoking during pregnancy resume smoking within 6 months postpartum and 50% to 90% have relapsed 1 year post-delivery. Smoking during the postpartum period causes a significant health risk for both mother and child. To date, there are no proven effective strategies for preventing relapse during the postpartum period. However, close follow-up, and continued counseling help in reinforcement of the patient's desire to quit smoking[21].

MARIJUANA:

Marijuana, also known as cannabis, refers to preparations of the Cannabis plant intended for use as a psychoactive drug and as a medicine. Marijuana is the most commonly used illicit drug among women of reproductive age, and during pregnancy and lactation[22, 23]. Like all substances of abuse, the actual rate of marijuana use and the statistics cited depend on voluntary reporting. In the United States, 4.6 % of African American, 3.0% of White, and 1.5% of Hispanic women admit to marijuana use in pregnancy[58], and the number of women 26 year or older who recently initiated marijuana use has increased significantly from 18,000 to 106,000 between years 2002 to 2010[2].

Tetrahydrocannabinol (THC), is the major psychoactive ingredient of marijuana. It binds to cannabinoid (CB) receptors, widely distributed throughout the nervous system, and other parts of the body. In the brain, CB receptors are found in high concentrations in areas that influence pleasure, memory, thought, concentration, sensory and time perception, appetite, pain, and movement coordination. THC is known to pass from the mother to the developing fetus through the placenta. In animal research, THC exposure pre- or perinatally, and even during adolescence can alter brain development, particularly in areas related to mood, reward, and executive function. Therefore, the fetus is affected by any amount of cannabis taken by the pregnant woman, placing it at a greater risk of complications[24].

The effects of marijuana use on the developing fetus in the preconception period and pregnancy are hard to establish because users of marijuana will frequently use other illicit drugs while pregnant, making it difficult to separate marijuana's effects from the effects of

other drugs. Although THC is the active ingredient in marijuana, over 400 compounds have been identified in marijuana and it is difficult to separate out the effects of these chemicals. Studies have determined that the CB1 receptor is present in all layers of human placental membranes and that stimulation of these receptors impairs fetal growth by inhibiting cytotrophoblastic proliferation[25, 26]. To date, there is no known association between marijuana exposure and spontaneous abortions[27]. However, in a large population-based prospective cohort study, maternal marijuana use was associated with fetal growth restriction.[28] Therefore, pregnant women who are known to use marijuana during pregnancy should be counseled about the associated risks and encouraged to abstain of using marijuana and other substances of abuse during pregnancy. Obstetric care should include follow-up ultrasounds at 28 and 36 weeks to confirm adequacy of fetal growth.

Although some animal studies indicate that marijuana may be teratogenic in very high doses, there is no firm link between maternal use of marijuana and congenital malformations in humans above the background risk of 3%. Reports of associations between marijuana use in pregnancy and gastroschisis remain unsubstantiated.[29] However, a study of almost 420,000 Australian live births over a 5-year period found that in utero marijuana exposure increased the risk of neonatal intensive care unit admissions, predominantly due to prematurity, but there was no relation to any increased risk of perinatal death[30].

Of greater concern, however, is the increasing evidence that in utero marijuana exposure may impair long-term growth and neurodevelopment, particularly in terms of cognition and behavior. Evidence from population-based human studies and in vitro animal data indicates that interference with the endocannabinoid system disrupts normal neurobiological development, neurotransmitter maturation, and neuronal survival[31–33]. A longitudinal cohort study found that marijuana-exposed children have smaller head circumferences at birth, which increase in disparity in adolescence[34].

Marijuana use in the postpartum period has not been well studied and there is limited clinical evidence to derive recommendations regarding counseling, intervention, or rehabilitation.

However, social work consultations should be used liberally in an attempt to stabilize the home environment as much as possible.

ALCOHOL:

According to the 2010 National Survey on Drug Abuse, 18.8% of pregnant women aged 15 to 44 reported current alcohol use[2]. The prevalence of alcohol use in pregnant women varies between racial and ethnic groups, 15.8% among African Americans, 22.7 % among Whites, and 8.7% among Hispanics[16]. Of these, 3.7% reported binge drinking, which is defined by the National Institute for Drug Abuse (NIDA) as a pattern of alcohol consumption that brings the blood alcohol concentration to 0.08% or higher. This number has remained relatively unchanged over the last 15 years according to a longitudinal study of data collected from the Behavioral Risk Factor Surveillance System between 1991 and 2005[35]. Alcohol is a protoplasmic poison with a narcotic-like effect on the CNS. Alcohol consumed in excessive quantities frequently causes poisoning because it rapidly enters the bloodstream, which carries it to all bodily organs. Long-term consumption of excessive amounts of alcohol leads to fatty liver disease and cirrhosis of the liver, chronic inflammation of the gastrointestinal tract, damage to the gonads and CNS impairment.

Alcohol is a well-studied teratogen, and its effects on pregnancy can include spontaneous abortion, fetal growth restriction, and birth defects. The incidence of alcohol use in non-pregnant women ages 15 to 44 years is 53%. It is estimated that as many as 24% of young women who drink are binge drinking[36].

Oftentimes, conception occurs during times of alcohol use or abuse and women continue drinking, unaware of their pregnancy, into the first trimester where all fetal organ systems can be affected at this early stage of development. Therefore, the preconception period is an important time to identify women at risk[37]. In the preconception period, each encounter with patients can be an opportunity to screen for alcohol use or abuse and intervene to reduce or completely stop alcohol consumption. There are several screening tools available. Questions to ask are detailed in mnemonics such as Take, annoyed, cut down, eye opener (T-ACE) [36]. The United States Preventative Services Task Force, the American College of Obstetrics and Gynecology, and the American Academy of Pediatrics suggest using preconception and prenatal visits to discuss the benefits of abstaining from alcohol. There are no evidence-based studies to suggest any amount of alcohol use that is safe during pregnancy.

During pregnancy, the fetus that is exposed to alcohol can be severely affected by fetal alcohol spectrum disorder (FASD). The alcohol level in fetal blood reaches the same level as it does in the mother and fetal liver cannot process alcohol as efficiently as the mother's liver. Therefore, women who drink alcohol during pregnancy subject their fetuses to a significant risk. There is strong medical evidence to suggest that heavy alcohol use or binge drinking can lead to high rates of FASD. However, studies show that even small amounts of alcohol used on a daily basis can be detrimental to the fetus[38]. FASD encompasses a wide range of disorders defined as prenatal and postnatal growth restriction, central nervous system abnormalities, and craniofacial abnormalities.

Some common fetal abnormalities associated with alcohol abuse include facial dysmorphogenesis, cardiac septal defects, and joint abnormalities. Centers for Disease Control and Prevention (CDC) studies show FASD rates ranging from 0.2 to 1.5 per 1,000 live births in different areas of the United States. This makes alcohol abuse and misuse in pregnancy the most common non-genetic cause of mental retardation. Little data exist regarding the postpartum period and alcohol use. There is a reported increased risk of sudden infant death syndrome and post-partum depression in women who drink alcohol[39]. As we become more aware of the importance of identifying women at risk for postpartum depression, it may be prudent to include those mothers who are identified as using alcohol during their pregnancy as a potential focus. The postpartum visit may be a good time to screen women for alcohol abuse. The Healthy Moms Trial supports the implementation of brief alcohol intervention during the postpartum period[40].

OPIOIDS:

The term "opioids" refers to natural, semi-synthetic, and synthetic alkaloid derivatives either prepared from opium or synthesized substances possessing morphine like activity. Opioids can produce a feeling of euphoria, and this effect, coupled with physical dependence, can lead to recreational use of opioids by many individuals. The analgesic effects of opioids are due to a decreased perception of pain, decreased reaction to pain as well as increased pain tolerance. The most common opioids are heroin, morphine, codeine, oxycodone, hydrocodone, and methadone. Heroin and methadone are the most commonly used opioids by pregnant women.

Most of the information available regarding the effects of opioids is derived from studies of patients who have used heroin or methadone. The prevalence of opioids use in child-bearing age women ranges from 1% to 21%[14]. The higher number reflects use in at-risk populations and does not represent overall use in obstetric population. Recently, there has been a drastic rise in the use of prescription

opioid analgesics, such hydromorphone and oxycodone.[41] Although there is a paucity of data specifically focusing on the pregnant population, data from substance abuse literature suggest that women with prescription opioid dependence are initiating use on average at 26 years of age, coinciding with a woman's peak reproductive years[42]. The extent of maternal risk is greatly dependent upon the predominance of intravenous injection as a route of opioids administration[43]. Aside from acute overdose, which carries a clear health risk, intravenous injection carries an inherent infectious risk, most specifically transmission of hepatitis B (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV), each of which is associated with long-term health concerns for the mother. There is also a higher rate of reported unplanned pregnancies (70% in women with significant illicit drug history compared with 34.8% in women without drug dependency) [44].

Heroin is the most commonly abused illicit opioid. It crosses the placenta readily and enters fetal tissues within 1 hour of maternal use. Women who use heroin are likely to use other harmful substances, such as tobacco, alcohol, and cocaine, all of which have their own potential adverse effects on pregnancy. Therefore, it is difficult to separate the effects of heroin from these other substances[45]. Pregnant women who use heroin experience a six-fold increase in maternal obstetric complications including intrauterine growth restriction, third trimester vaginal bleeding, preterm delivery, and puerperal morbidity. In addition, stillbirth, depressed Apgar score, meconium staining of the amniotic fluid, and chorioamnionits are all increased in heroin users[46–48]. The developing fetus and neonate also share undue burdens when exposed to opioids during pregnancy. Rates of preterm delivery, very low birth weight (1–1.499 kg), low birth weight (1.5–2.499 kg), and stillbirth have all been shown to be significantly increased among neonates born to opioid-dependent mothers[46–48]. Because of the increased risks of stillbirth, growth restriction, and preterm birth, increased fetal surveillance and serial growth evaluations are recommended[49].

Neonatal abstinence syndrome (NAS) is the most consistent outcome in neonates born to mothers with opioid addiction. The incidence of NAS is quite variable, ranging from 55% to 94%[50]. NAS is the constellation of withdrawal signs in the neonate including seizures, breathing problems, tremors and irritability, difficulty of feeding, and dehydration. Many of affected neonates are hospitalized for several weeks with methadone or morphine treatment to gradually wean them from their dependence on the drugs that their mothers used[47]. Multiple regimens have been proposed to treat NAS, however, the American Academy of Pediatrics (AAP) recommends tincture of opium for replacement medication[51]. There are preliminary promising data with the use of buprenorphine as a treatment for NAS.[52]

Opioid analgesics such as oxycodone and hydromorphone can be judiciously used in pregnancy with close supervision but are much more commonly used in the post-partum period for post-delivery pain control. No congenital anomalies have been reported in babies born to mothers who used oxycodone or hydromorphone for prolonged periods[45].

However, the use of both substances increases the risk of neonatal withdrawal, particularly if they are used in and around the time of delivery.

Prenatal and antepartum care for a pregnant woman using opioids must be tailored to her special needs.

Testing for sexually transmitted infections, such as HIV, hepatitis B and C, syphilis, gonorrhea, and chlamydia should be included in routine care. Pregnant women need to be counseled regarding the effects of opioids on themselves and their fetuses, and the benefits of methadone maintenance compared to

continued opioids' use. Pregnant women taking methadone demonstrate reduced use of illicit drugs, better compliance with prenatal care, and improved newborn birth weight[53].

Opioids are excreted into breast milk in small quantities and minimal, if any, effect on the newborn is clinically significant. However, the neonate should be observed for signs of adverse effects, such as gastrointestinal side effects, sedation, and feeding pattern changes. For heavy narcotic abusers and women in methadone treatment, the postpartum period is an excellent time to address the possibility of gradual narcotic withdrawal and continued rehabilitation.

COCAINE:

Cocaine is a crystalline tropane alkaloid that is obtained from the leaves of *erythroxylon coca* L plant[54]. Its use as a ''recreational drug'' skyrocketed in the last century. The commonly used form, crack, is almost pure cocaine formed through ''cooking'' the cocaine rocks with water and sodium bicarbonate, producing the alkalinized form of cocaine. This form, known as crack from the characteristic noise made during the cooking process, is the most addictive form. In 2010, there were over 1.5 million current users of cocaine[2]. It is difficult to discern the true prevalence of cocaine use during pregnancy due to the large variations that exist by reporting method. However, in a large national survey conducted by National institute of Drug addiction (NIDA) in 1995 utilized the self-report method and found that the prevalence of cocaine abuse in pregnant women was 4.5% among African Americans, 0.4% among Whites, and 0.7% among Hispanics[16]. Regardless of the form, cocaine is absorbed quickly. Once absorbed, the physiological hallmark of cocaine is profound vasoconstriction, through its sympathomimetic properties. Cocaine blocks the presynaptic reuptake of the sympathomimetic neuro-transmitter norepi-nephrine, serotonin, and dopamine. The norepinephrine effects lead to hyper-tension, tachycardia, and possible arrhy-thmias. Within 2 minutes of cocaine use, systolic blood pressure rises 25mm Hg and heart rate increases 20 beats/min[55]. The dopaminergic effects on the limbic system and cerebral cortex lead to the ''high'' or euphoria experienced with cocaine use[56]. Other effects of acute cocaine use include coronary vasospasm, possible ischemia after reduced cardiac oxygen delivery, platelet activation, increased platelet aggregation, and alteration of the thromboxane production leading to an increased risk of thrombosis. These effects could place a pregnant woman at an increased risk for adverse outcomes[57–59].

Prenatal cocaine use is associated with poor fetal and birth outcomes. Cocaine rapidly crosses the placenta and a higher concentration occurs in the fetus.

Intrauterine growth restriction, low birth weight, and decreased head circumference are all noted to be increased in neonates of mothers who use cocaine in pregnancy. Cocaine abuse is frequently associated with inadequate prenatal care and concomitant use of tobacco and alcohol[60]. Moreover, cocaine abuse is associated with psychosocial, behavioral, and biomedical risk factors, such as poverty, poor nutrition, stress, depression, physical abuse, lack of social support, and sexually transmitted infections, all of which can greatly affect pregnancy outcome[61].

As with any other substance, cocaine exposure during the first trimester can affect embryonic and fetal development. An increased risk of congenital anomalies especially of the brain and the cardiovascular system has been reported[62].

Owing to the significant vasoconstriction effects, cocaine users experience a significant increase in first trimester spontaneous abortion and up to 38% of early pregnancies may result in miscarriage in cocaine-abusing mothers[60]. This increase in incidence of spontaneous abortion is probably secondary to an increase

in maternal plasma norepinephrine, which increases uterine contractility, constricts placental vessels, and decreases blood flow to the fetus.

Cocaine use during pregnancy is associated with increased risk of premature preterm rupture of membranes, preterm labor, and preterm delivery. Cocaine stimulates uterine contractility through β-agonist action on the β2-receptors of the uterus. Placental abruption accounts for 2% to 15% of adverse effects of cocaine use during pregnancy. Abruption is thought to be caused by vasospasm and hypoxia of the placental bed. As a result of maternal cocaine use and placental abruption, the incidence of stillbirth in cocaine-abusing mothers is elevated 8% above the expected level when compared to the general population[60].

Cocaine abuse during pregnancy is considered a significant risk factor for infant neglect and abuse in the post-partum period, and this often results in the removal of the infant from maternal custody in the first 18 months of life. Prospective studies indicated a strong link between cocaine-using mothers and child maltreatment, with high rates of care-giving disruption (43%) and child maltreatment by 2 years (9% to 23%)[63].

AMPHETAMINES:

The amphetamine like substances including amphetamine and methamphe-tamine are powerful CNS stimulants with a profound ability to increase wakefulness and focus. The principal mechanism of action is increased release of norepine-phrine, serotonin, and dopamine from neurons within the brain. At the same time, amphetamines inhibit re-uptake of these neurotransmitters. Amphetamines are commonly used as drugs of abuse, particularly methamphetamine (also known as "crystalmeth").

Methamphetamines abuse in the U.S. and in other regions of the world remains a very serious public health concern. The latest data from the U.S. National Survey on Drug Use and Health (NSDUH), an ongoing national probability survey, estimates that 5.8% of persons ages 12 and older (approximately 14.2 million people) used methamphetamine at least once in their lifetime[64]. Information about the prevalence of methamphetamine use during pregnancy varies widely. The magnitude of the methamphetamine problem comes from the Treatment Episode Dataset (TEDS), which indicated that methampheta-mine abuse has more than doubled between 2008 and 2012, from 3.7 to 9.2%[2].

The effects of amphetamine abuse in the preconception period are difficult to establish because amphetamines abusers commonly use other illicit drugs while pregnant, making it difficult to separate the effects of amphetamines from those of other illicit drugs. As with virtually all other drugs of abuse, amphetamine use is often associated with risky sexual behaviors, teenage pregnancy, and potential increased risk of sexually transmitted infections[65].

Animal studies showed that in utero metham-phetamine exposure can have a negative influence on the neurodevelopment of offspring, an increased risk of cleft palate, retinal defects, delayed physical growth and motor development[68, 69]. Human studies found also that prenatally exposed infants to methamphetamine exhibit poor alertness and feeding, low birth weight, cleft lip, ambiguous genitalia, anencephaly, and gastroschisis[78–70]. Other studies have not shown any association with increased risk of fetal malformation above the background 3% population risk[68].

Preclinical studies have shown that methamphetamine to be neurotoxic to dopami-nergic and serotonergic neurons through the production of reactive oxygen species resulting in cell death and mitochondrial dysfunction[71]. Studies on prenatal exposure to methamphetamine showed altered neuroco-gnitive perform-ance in that methamphetamine

exposed children had lower verbal memory, long-term spatial memory, sustained attention and visual motor integration[72]. However, a recent study showed that children exposed prenatally to methamphetamine have poorer gross motor and psychomotor performance scores at 2 years of age compared to non-exposed children, but there was no effect on cognitive and fine motor performance scores[73].
Fetal growth restriction has also been associated with amphetamine use in pregnancy. It is unclear if this is related to a direct effect of the agent on the placenta or fetus or whether this represents a nutritional problem in patients due to the anorectic effect of amphetamines[68].
Information about the use of amphetamines in the postpartum period is scant, but abuse of amphetamines during lactation is considered possibly hazardous. Neonatal withdrawal has been described, including jitteriness, drowsiness, and respiratory distress[74].
Maternal methamphetamine use may have long-term detrimental effects on exposed fetuses, and exposure may result in future learning and memory impair-ments[75].

SEDATIVE-HYPNOTICS AND ANXIOLYTICS:

Barbiturates and benzodiazepines belong to a larger category of medications; sedative-hypnotics and anxiolytics, which are frequently abused.
Of the barbiturates, butalbital is an active agent in many medications to treat migraines. Since migraines are more common in reproductive age women, many women conceive while using butalbital containing medications. Due to the severity of migraine and headache during pregnancy, these drugs continue to be appealing to many pregnant women and they continue using them in pregnancy. Butalbital is a category C drug and it should only be used if the benefits outweigh the risks. Review of literature about safety of barbiturates' use in pregnancy suggests that there is no increased risk of fetal malformation noted above expected levels of occurrence. However, neonatal withdrawal is a critical consideration if the mother is a heavy barbiturates abuser, particularly close to the time of delivery[45].
Benzodiazepine use in the preconception time period is not uncommon and frequently prescribed for the treatment of anxiety. Benzodiazepines are also frequently prescribed during pregnancy and approximately 3% of all pregnant women use this type of medication[76].
Benzodiazepines are generally category D drugs, reflecting positive evidence of fetal risk. However, there is conflicting evidence regarding the teratogenicity of benzodiazepines, with the suggestion of an increased likelihood of multiple anomalies, including cleft lip and palate, fetal growth restriction, and intrauterine fetal death. However, there is no study or meta-analysis that has been able to definitively link benzodiazepine abuse with a specific neonatal syndrome or constellation of anomalies.
Exposure to benzodiazepines during the last trimester of pregnancy increases the risk for development of the floppy infant syndrome. Since the floppy infant syndrome can cause severe morbidity, prescription of benzodiazepines in the last trimester of pregnancy is not recommended[77].

MANAGEMENT OF PREGNANCIES IN SUBSTANCE ABUSING MOTHERS:

General considerations:

Pregnancy in a substance-abusing mother is considered high-risk and is associated with significant maternal and fetal complications. Teratogenicity, poor maternal nutrition, IUGR, poor placental perfusion and function, and withdrawal syndromes are the most common obstetric issues that must be addressed. In the case of cocaine abuse, placental abruption and

stillbirth are important additional considerations.

Teratogenic Exposure:

The possibility of substances of abuse causing fetal anomalies is an overriding concern. Genetic counseling, particularly in the preconception period, about the potential teratogenic effects of the abused substances is very helpful to the expectant mother so she may abstain from using these substances.
Ultrasound identification of structural anomalies and addressing them by consulting various pediatric specialists for post-delivery management will optimize neonatal and infant outcomes. Serial ultrasonographic surveillance for fetal growth and frequent fetal well-being testing will help in monitoring fetal growth and delivery planning.

Nutritional considerations:

Poor maternal nutritional status is often associated with many substances of abuse as many of these substances suppress maternal appetite.
A multi-disciplinary approach incorporating nutritional counseling by trained dieticians can certainly be valuable. Frequent maternal weight checks and fetal interval growth surveillance should be in the routine obstetric care for substance abusing mothers. Nutrition counseling should focus on a well-balanced diet, adequate caloric intake (25 to 35 kcal/day of optimal body weight) prenatal vitamins, folic acid and minerals supplementation. Iron deficiency anemia is a common problem in the substance abusing population, and an additional 60 to 120 mg of iron is recommended [78].

Intrauterine growth restriction and placental insufficiency:

Because of the high correlation between substance abuse and intrauterine fetal growth restriction, surveillance for fetal growth and placental function is an important component of care for substance -abusing mothers. Recommendations involve serial uterine fundal height measurements and ultrasound evaluation of the fetus with attention paid to fetal head circumference and biparietal diameter, abdominal circumference, amniotic fluid indices, and Doppler velocimetry. Serial ultrasound surveillance typically begins at approximately 24 weeks of gestation and continues at 4-week intervals thereafter. Fetal wellbeing testing primarily by non-stress testing and the biophysical profile can be used depending on the clinical situation. They are typically performed in the beginning of the third trimester. Timing of delivery can be a challenge in the growth-restricted fetus. The risks of prematurity must be weighed against the risk of intrauterine fetal death due to placental insufficiency. In general, significantly abnormal umbilical artery Doppler velocimetry is usually an indication for delivery. Complete absence of fetal growth observed in consecutive ultrasound evaluations may also provide a strong indication for delivery.

Labor management:

Management of the substance-abusing patient in labor can present significant challenges to the obstetrical team. As a general rule, the labor and management of the substance-abusing patient should be based on widely accepted obstetric practice and recommendations. Establishing healthy and non-threatening communication with a substance-abusing mother in labor is a paramount goal for obstetrical caregivers.
Regional analgesia is the preferred method to control pain during labor. However, each particular substance of abuse brings its own challenges. Anesthesia consultation and preoperative evaluation should be obtained to determine the safest and most appropriate method for pain management during labor and

delivery especially if cesarean section is planned or expected[79].

Management of withdrawal symptoms:

Issues arising as a result of maternal and fetal withdrawal must be managed on an individualized basis, taking into consideration the substance of abuse. For example, it is not prudent to withdraw methadone from an addicted or abusing mother because this may increase the likelihood of fetal stillbirth[78].
In contrast, the withdrawal of cocaine will likely diminish the possibility of catastrophic placental abruption or stillbirth. It is important to adopt a team approach regarding maternal and neonatal withdrawal, incorporating neonatologists, psychiatrists, and social workers.

Conclusions:

There are many challenges in diagnosing and treating maternal addiction and substance abuse during pregnancy.
As the magnitude of the problem increases, it has become critical to create a model in which pregnant women can receive comprehensive medical care while being treated with compassion and dignity to address the complex physical, emotional, social, and environmental characteristics of addiction.

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MOBILIZATION OF THE PUBLIC AGAINST ADDICTION: THE TURKISH GREEN CRESCENT SOCIETY AS A MODEL INSTITUTION

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Abstract:

In this article, a general framework on the addiction problem is analyzed by focusing on the works of the Turkish Green Crescent Society. A brief comment on the industries behind alcohol, tobacco, and drugs is given to understand the background of the problem. As a model institution, the history, organizational structure, vision, objectives, and activities of the Turkish Green Crescent Society are summarized in the article. Examples of prevention practices, educational, advocacy and international programs are presented in the tactics for the mobilization of the public against addictions. Then the psychological drive behind being addicted and especially the threat of spread among young generation is presented giving special attention to "peer effect" phenomenon.

Keywords: addiction, public awareness, prevention, advocacy, Turkey, Green Crescent Society

Introduction:

As the President of the Turkish Green Crescent Society, and the Chairman of the Addiction Working Group in the Federation of Islamic Medical associations (FIMA), I would like to start this article by giving a general framework of the problem of addiction. Then, I will summarize the history, vision, objectives and activities of the Green Crescent Society; including the tactics for the mobilization of the public against addiction. It is important that we realize and accept that "Addiction is a type of slavery! We, representing humanity, have to be against all kinds of addiction!"

Background of the Problem

One of the ways to prevent the evils of addiction is to fight through scientific methods against the power groups that promote it. We are aware of the fact that the addiction industry reaches out, and intends to reach out even further, to our people and our youth, legally and illegally, through various ways and means that continue to change and develop day by day. It is apparent that our efforts in trying to stop them by using ordinary slogans and methods gets more and more difficult. For this reason, the best instruments that we can use is to conduct serious scientific studies on how the problems emerge and spread, to follow up with this scientific data and share them with the public and authorities, to research on the ways of fighting against addiction and how they can be applied through national as well as international scientific meetings and forums. The problems related to addiction do not only derive from our own social, administrational and moral structure, but are open to the influence of a broader spectrum.

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Today, through the tools of mass communication and the tools and carriers of the global culture, a structure with an expanding influence has emerged in our society as in the rest of the world. The Green Crescent Society cares about the world's way of fighting against this experience that it is going through, and about the scientific knowledge accumulated in this field. It is necessary to transfer this knowledge into healthy channels by making use of local dynamics as well. We are initiating a more active process in the international arena, with the hope and aim that the whole world will act upon conscience.

Just as the evil does not emerge only from our own internal structure, the solution is not a process that we can handle on our own, either. We want to speed up the activities carried out in coordination with other organizations working in this field throughout the world, in the name of our goal to prevent the evil and addiction before it even starts. We believe that there is a lot to do, especially in the countries where addiction and the production of addictive substances are widespread. For this purpose, the Green Crescent Society, with its experience of almost a century, will remain determined to carry its knowledge and efforts to the international arena, and to mobilize the collective conscience of humanity in the fight against addiction.

Addiction Industry:

It is a well known fact that drugs, tobacco, and alcohol are the primary addictive substances in the world. They cause millions of deaths every year. Of the producers of these substances, at least two of them, namely, the tobacco and alcohol industries are acknowledged as legal industries which are subject to international trade rules. When we look at this issue from the public health perspective, alcohol consumption results in 2.5 million deaths each year and it is one of three primary public health problems of the world. Alcohol is the third leading reason of preventable deaths and injuries on a global basis. Between the ages 15 and 29, 320.000 individuals lose their lives because of alcohol related reasons every year in the world. This number corresponds to 9% of deaths in this age group[1].

Apart from being addictive, alcohol is a public health problem known as the reason for 60 different diseases and conditions, injuries, mental and behavioral disorders including digestive system diseases, cancers, cardiovascular diseases, immunity disorders, lung diseases, musculoskeletal diseases, gonadal dysfunction, preterm births, and low birth weight[2] .

Another important addictive substance is tobacco. According to World Health Organization (WHO), Tobacco kills nearly 6 million people each year. More than five million of those deaths are the result of direct tobacco use while more than 600,000 are the result of non-smokers being exposed to second-hand smoke. Nearly 80% of the more than one billion smokers worldwide live in low- and middle-income countries, where the burden of tobacco-related illness and death is heaviest. More than 50 illnesses and health problems are caused by the direct and indirect effects of cigarettes. Tobacco caused 100 million deaths in the 20th century. If current trends continue, it may cause one billion deaths in the 21st century[3]. In addition to alcohol and tobacco, illicit drugs are also one of the most serious problems threatening our future generations. Recent estimates prove that in 2008, 155 to 250 million people, or 3.5% to 5.7% of the world's population aged 15-64, used psychoactive substances, such as cannabis, amphetamines, cocaine, opioids, and non-prescribed psychoactive prescription medication. Globally, cannabis is the most commonly used (129-190 million people), followed by amphetamine type stimulants, then cocaine and opioids. The use of psychoactive substances causes significant health and social problems for the people who use them, and also for others in their families and communities[4].

Both alcohol and tobacco industries use similar tactics to resist public health policies.

They are very actively lobbying politicians, mobilizing farmers, retailers and advertising agencies to influence public health legislation. They challenge laws and buy friends from sports and cultural groups, and undermine control policies[5]. In addition to these legal deadly industries, there is also an illicit drug industry with a massive market. Annual value of the illicit drugs in the world is estimated at US$320 billion. This industry is to a large extent outside the governmental controls. In addition to the significant harmful health effects of the drugs they market, this industry is a major contributor to crime, violence and corruption[6].6From the information above, it can be deduced that addiction is not only a psychological issue affecting individuals, but it is also a major problem that is caused by interacting social, economic and political factors. To protect humanity from the damages of the addiction industry, public health community and civil society should cooperate in the struggle against this huge industry and power groups.

THE TURKISH GREEN CRESCENT SOCIETY:

History and the Organizational Structure:

The Turkish Green Crescent Society was founded with the initial name "Hilal-i Akhdar" on 5 March 1920 at the end of the First World War in Istanbul. The society was founded by patriotic intellectuals in 1920 as a response to the British attempts to distribute alcohol and drugs free of charge in Istanbul in order to undermine the resistance against the occupation. The founders sensed the upcoming dangers of alcohol and drug addiction that would result in decline of the resistance against the occupation. The patriotic intellectuals established the "Green Crescent", "Hilal-i Akhdar" in Istanbul in order to warn Turkish society against occupation and harms of alcohol and drugs.

The Turkish Green Crescent Society is a non-governmental association was included among "The Public Beneficial Societies" upon the decision of the Council of Ministers dated 19 September 1934. Public beneficial society status is given by the Turkish government to the organizations that provide public benefits[7]. The Green Crescent Society is an independent, non-profit and non-governmental organization that acts according to rules of the Ministry of Interior Department of Associations. The General Assembly of the Green Crescent is the highest and most authoritative decision-making body of the Society. The members of the Executive Board and the President are elected triennially by the delegates in the Assembly. The delegates of the General Assembly are elected by the branches and the headquarters of the Green Crescent from among the Green Crescent members. The General Executive Board is composed of thirteen administrative board members and seven auditing members. The Green Crescent Branches have their own General Assemblies and Executive Boards. The Headquarters and Branches are governed according to rules of the Green Crescent Constitution. The Green Crescent has 37 branches and 101 representation offices in different provinces of Turkey and has 30 thousands members across the country[8]. Apart from employees in the headquarters and branches, the members in General Assembly and Executive Boards take part in the struggle voluntarily and this make the Green Crescent a voluntary movement. There are two commissions within the Society consisting of Green Crescent members and volunteers. The first one is the Green Crescent Youth Commission which involves hundreds of young people, mostly university students. Universities are the primary working field of the Young Commission and they work within a partnership with the Green Crescent Youth Clubs in the universities. There are 11 Green Crescent University clubs in Turkey. The clubs play important role in raising awareness and keeping the young students away from harmful habits. They are involved in various activities like "smoke-free campuses"[9].

The second voluntary commission is the Green Crescent Women Commission. The commission members work voluntarily in the neighborhoods to educate housewives on

addictions. Both commissions are leading voluntary activities of the Green Crescent.

Any person can become a member of the Society if he / she adopts the principles, values, goals and working ethics of the Green Crescent. He / she should have no record of any illegal activity, not addicted to tobacco, alcohol or any drug To be a member one should pledge the following commitment "As long as I stay as a member, I solemnly pledge on my honor and life not to use any tobacco, alcohol or drug and to propagate Society's ideals." A person, who would like to be a member, applies directly to directorate of the branch on the basis his/ her place of residence. The decision making body for the affiliation is Executive Board of the Green Crescent Branch. Turkish Green Crescent Society is a member of the National Quality Movement, led by the Quality Association of Turkey.

Quality Association of Turkey provides training and direction to develop the Green Crescent's management structure and human resources. EFQM (European Foundation of Quality Management) Model is implemented to be a part of the journey on the road to being a Center of Excellence.

Core Values and Principles of the Society Struggling for Human Dignity:

The scope of the Green Crescent is to ensure the protection of human health and respect for human dignity against risk factors causing addiction. In all its activities, the Green Crescent supports mutual understanding, fellowship, friendship, cooperation and permanent peace among individuals. It endeavors to relieve and to prevent human pain anywhere arising from addictions within national and international capacity.

Non-Discrimination: The Green Crescent does not discriminate people based on race, age, religion, ability, marital status, sexual orientation. By prioritizing the most urgent and necessary requirements, it focuses on relieving human pain arising from addictions within its capacity.

Independency: The Turkish Green Crescent is an independent non-governmental organization. As a supporter of public authorities for human affairs, the Green Crescent is subject to international agreements duly enacted by State of the Republic of Turkey. In this context, it has the autonomy to make international agreements and to act accordingly within its field of activity.

As Charity Organization: The Green Crescent is a voluntary charity organization which does not seek profit or personal benefit in its activities.

As Public Health: The Green Crescent is a voluntary non-governmental organization which builds programs to fight risk factors for all kinds of addiction, particularly, those related to tobacco, alcohol, and drugs.

Scientific Understanding: The Green Crescent adopts evidence-based research, analysis and intervention regarding behavior reinforcement and /or behavior change during the phase of fighting against addiction, protection and prevention of addiction, therapy and treatment.

Globalism: Having equal status and sharing equal responsibility and duty like other foreign national societies in the field of combating addictions, the Green Crescent adopts the following principles: creating a global organization to fight against addictions on a worldwide basis and as a part of such organization, evaluating issues on a global scale and working accordingly, functioning on a global level and being influential and highly regarded.

Sense of Community: Organizing to create awareness for public health at every stage from the whole part of society to individual and public organizations, carrying out participating activities on social-level and permanent achievement are considered as a necessity by the Green Crescent[10].

MOBILIZATION OF THE PUBLIC AGAINST ADDICTION:

Evidence Based and Scientific Prevention Practices

The Green Crescent Society contributes to public health by developing evidence-based prevention programs and advocating for legal, social and environmental changes in the fight against addiction.

The Green Crescent fights against tobacco, alcohol, drug, gambling, and technology addiction that destroy the mental and physical health of the youth in cooperation with the private sector, governmental bodies and international organizations. It works to develop contemporary strategies for dealing with consumption of addictive substances and for the prevention of addiction by using evidence-based scientific methods.

The Green Crescent launces many projects and preventive campaigns every year. The activities and programs are based on the guidelines of the prevention programs. There are general set of guidelines for prevention activities which are general considerations for all addiction prevention activities. Assessment of the need, assessment of the capacity and sources, planning with goals and objectives, implementation, and evaluation are the basic steps in the Green Crescent preventive programs[11]. The implementation and the findings of three different programs are summarized below.

Youth Center Project with Ministry of Youth and Sports:

The project's aim was to establish a youth center in Istanbul with the cooperation of Ministry of Youth and Sport. The project was planned according to the needs of the university students in Fatih district. A survey of five hundred young students was conducted to understand the needs of young people and evaluate their perception of addictive substances like; tobacco, alcohol, and drugs. As a result of the research the youth center was designed and established to meet the requirement. The Youth Center became operational in 2013 and is still providing sporting and artistic activities for young students[12].

The Project on Combating Substance Abuse through Official Primary School Green Crescent Clubs in Istanbul:

The project was implemented in cooperation with Istanbul Development Agency (ISTKA). Using the slogan "The Green Crescent is looking for youth leaders", the project reached 200,000 students in Istanbul. The project aimed to educate nearly 5,000 secondary school students and 1,000 teachers. The young leaders were trained on the Green Crescent Club Curriculum and peer education approach was initiated along with training on leadership and motivation. As part of the project, participants were administered pre- and post-tests. Awareness and knowledge level of cigarette and internet addiction were measured in students between the ages of 11 and 14. All indicators showed a positive effect of the peer education amongst children of different age groups, genders, and socioeconomic levels. Educated leader students conducted many activities to attract the attention of their peers at schools. Approximately 80% of students who participated in the training expressed a desire to share the information they learned in the program with their friends and to participate in similar programs in the future[13].

National Water Pipe Campaign:

The National Water Pipe Campaign was prepared as a nationwide communication campaign to prevent the epidemic of water pipe use across the country. Qualitative and quantitative preliminary surveys were lunched and completed in 2013. 1,200 smokers, non-smokers, and water pipe users participated in the survey. The habit of use of water pipe and the perception in the community about its use were analyzed to plan communication campaign in 2014.

The contents of the campaign were prepared and the kick off is planned on 1st April 2014. At the end of the year another survey will be launched to analyze the effects of the campaign[14].

Advocacy:

The Turkish Green Crescent Society plays an important role in policy making, lobbying and advocacy issues. The Green Crescent efforts are especially focused on carrying out

preventive social and advocacy activities aiming at creating public opinion and raising awareness of the decision-makers and the general public. The advocacy activities vary from legislation on public health to alcohol and tobacco control policies.

Article 58 of the current Turkish Constitution, which forces the state to protect youth from harmful habits was a proposal of the Green Crescent.

"The State shall take necessary measures to protect youth from addiction to alcohol, drug addiction, crime, gambling, and similar vices, and from ignorance"[15].

The WHO Framework Convention on Tobacco Control and its guidelines provided the foundation for countries to implement and manage tobacco control. WHO developed the MPOWER measures to assist in reducing the demand for tobacco products at country-level[16]. In recent years Turkey became an example of success for the implementation of MPOWER measures in the World. Green Crescent played an important role in the Turkish Government's adoption of the Framework Convention on Tobacco Control and its enactment process in Turkey[17].

Recently, the Turkish Government has enacted a new law on alcohol control policy within the framework "the National Alcohol Control Action Plan". The bill was proposed and prepared by the Ministry of Health and was approved in the Grand National Assembly of Turkey on 24th of May, 2013[18].

Unfortunately, the new alcohol law turned to be a political instrument between the ruling and the opposition political parties in Turkey. The new law faced very strong objections from the secularist segments of the society claiming that it deliberately restricts their freedom and it is an interference into their lifestyle. Alcohol Industrial involvement and lobbying increased the reaction against the regulations. Alcohol industry propagated the argument that the alcohol regulations are religious based and mostly violate secular people's freedom. The Green Crescent conducted advocacy campaigns for the adoption of "The National Alcohol Control Action Plan". Green Crescent organized an international symposium in Istanbul on 25-27 April 2013 and representatives from 60 different countries including Turkish Prime Minister Recep Tayyip Erdogan, and the Director-General of the World Health Organization Dr Margaret Chan participated. Global Alcohol Policy Symposium provided important base for the adoption of the new alcohol law in Turkey. As an advocacy organization, Green Crescent tried to push decision makers to enact this law with the scientific and evidence-based public health principals[19].

The Turkish Green Crescent Society has adopted a strategy to help the development of the alcohol policy in Turkey. The Turkish Alcohol Policy Platform was established in 2013 on a national level under the leadership of the Green Crescent. Many organizations from various sectors came together under the platform and currently 40 different organizations are the members of this platform. It was an attempt to organize pressure group to raise public health awareness in general and about alcohol policy in particular[20].

The Green Crescent in Educational Institutions:

As a public health organization, the Green Crescent mostly cooperates with educational institutions for preventive activities. The anniversary of the foundation of the Green Crescent Society 1-7 March, is celebrated as the Green Crescent Week in Turkey by the Council of Ministers' decision since 1960. The syllabuses of the secondary and high schools cover contents on harmful habits, addictions and the concept of the Green Crescent during that week, and great numbers of activities are carried out in schools across the country during the entire month. The Green Crescent has an official protocol with the Ministry of National Education.

The National Educational Program on Addictions of the Green Crescent has been

developed in cooperation with the Ministry. It provides an opportunity to conduct many surveys, projects and activities beginning at primary and including secondary and high schools. In every secondary and high school across the country, there is a Green Crescent Club. These clubs are conducted according to the rules of the Club Regulation of Ministry of National Education. The regulation obligates schools to constitute the Green Crescent clubs under the leadership of the trainers. Although they are compulsory for the teachers, students participate in the clubs voluntarily. The Green Crescent clubs follow the curriculum of Ministry of Education and they mostly conduct their activities in March. The Green Crescent club members conduct their activities under the guidance of their teachers. The Green Crescent branches and headquarters provide the required documents for the teachers and launch some programs to train club trainers in the provinces. Peer education activities are mostly implemented through these clubs to keep children away from harmful habits. According to this method students work to protect their friends from harmful habits and they inform their friends periodically at schools.

Leader students in the clubs reflect and share their experience in the Green Crescent Club Periodical published monthly.

Since the Republic of Turkey is a secular country, the laws and the rules of the educational institutions cannot be religious based. The philosophy of the Green Crescent clubs is based on the educational rules of Ministry of National Education and universal moral values[21].

Peer Effect:

There are many causes of addiction. It is impossible to focus on just one single cause and achieve results from methods based on only that specific cause, whereas many psychological, physiological, cultural and environmental factors exist. Taking such an easy way out is no different than what an ostrich does when it sees its hunter. Addiction of smoking, alcohol, drugs and the recently developed technology can pass through many doors and find new spaces and victims. Beside the causes of addiction, what we really need to pay attention to is the tools of addiction, namely, the means that influence and push individuals, the youth, into addiction. When individuals step out of didactic education processes in their families and schools, they become less shielded from the marketing strategies of the media and the addiction industry, and become easier targets prone to influence, under the so-called "freedom". This opening that comes along with getting out of teachings and restrictions of their families and schools that interfere in, and limit their participation in what they consider pleasant activities, makes the children/youth open to ideas of "being free" and "realizing oneself". This pursuit of independence of becomes a tool for addiction. This concept of freedom combined with the pressure of two other elements. One, is the idealized and marketed world; and two, the acknowledgement of the peers sharing the same interests and expectations. Peers are the only place where the individuals who turn their backs to the difficulties of being good and responsible, find acknowledgement and appreciation. This situation that we can call "the peer effect" provides two benefits to individuals. First, finding an authority that likes and appreciates the situations and tendencies that are not approved by authorities such as the family and school. Second, the psychological confidence resulting from seeing the peers sharing the same evil by doing things considered bad. As a result of that, the individuals isolated by the increasing criticism and pressure of the families and schools, are left even weaker in their peer groups. At that point, these individuals are now forced to behave according to the interests and tendencies of their peers, and making the expected sacrifices and attempts to get accepted by and belong to the group. And then it is difficult to predict where these individuals will stop. On the other hand, we cannot undervalue the number of young people who have received good family discipline, good education and who have

made healthy progress, and have strong personalities and characters. What needs to be done and what the Green Crescent has adopted is to encourage the youth in the right direction. The youth constitutes the most important part of the purest and cleanest times in terms of emotions and thoughts, because the demand for justice and tendency to sacrifice oneself in the name of what is right, and of their ideals, exist intensively in young people. And that is why we have the opportunity to educate our youth and make them volunteer to fight against the addictions of their peers by setting good role models. Young people diverted to quests outside of the teachings and ideas of families and schools, will easily accept their peers who are mentally and physically healthy, and who look to life and the future with confidence. This way, peer groups will move from being a tool of the evil and addiction to leading the way for raising educated generations who will look to the future with confidence. Also, generations who have chosen this path of commitment to benefit and their human-oriented thinking will safeguard the future of our nations.

It must be our primary goal to expose the dangers of the concepts, which are presented to our youth under the name of freedom, and which trap them in the web of addiction industry, and to raise our youth as responsible individuals with strong minds, morals and personalities of the future.

For our social values and healthy family structure to be carried into the future in the hands of mentally and physically healthy generations, we have adopted an understanding and determination beyond daily philosophical and political debates. We aim to transform the Turkish Green Crescent Society into a structure that is more efficient and more active both in the service of our nation and of humanity, through ideals and ideas that we have preserved since the first day of our foundation, by opposing the misinterpretation of the definition and requirements of freedom as well as some negative mentalities that stand out as the values of our era.

International scope:

Alongside national affords, the Green Crescent targets to be part of international solidarity to fight against addictions on a global level. The Turkish Green Crescent Society is an organization who has a Special Consultative Status within the Economic and Social Council of the United Nations[22]. The Green Crescent is also a member of the European Alcohol Policy Alliance, EUROCARE[23]. Turkish Green Crescent Society has "EFQM Committed to Excellence" certificate of the European Foundation for Quality Management. Green Crescent also cooperates with a great number of organizations in the world.

The Society aims to transfer its experience and values to other organizations. It helps the foundation of new Green Crescents in different countries, namely; Palestinian, Bosnia and Herzegovinian, Malaysian, Thai, Lebanese and Montenegrin Country Green Crescents. A major objective of the Turkish Green Crescent Society is to launch the World Federation of Green Crescent Societies for a better future of our next generations.

The Turkish Green Crescent Society is always ready to share its expertise, know-how and documents to help the foundation of Green Crescent Societies in other countries in order to make our world smoke-free, alcohol-free, drug-free and to protect our next generations from all kinds of addictions that are the evils of the modern world.

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BEWARE OF SPIRITUAL BYPASSING: INTEGRATE PSYCHOTHERAPY IN THE ADDICTION RECOVERY PROCESS

*Ketam Hamdan**

Abstract:

This chapter discusses the phenomenon of spiritual bypassing, generally defined as a person's utilization of spiritual practices and beliefs to avoid unresolved psychological issues that may have triggered the addiction. As a result, those on the path of addiction recovery will most likely not heal properly and will continue to struggle with their addiction issues. To elaborate on this topic further, this chapter contains four sections.
First, a brief discussion of the definitions of key terms used throughout the chapter. Second, a summary of the characteristics of spiritual bypassing and how it may manifest on the path to recovery. Third, a psychological model for holistic development is offered. Finally, this section provides recommendations for using both spiritual and psychological practices for sustainable addiction recovery.

Keywords: *Spiritual Bypass, Islam, Addiction Recovery, Therapy, Psychology.*

Introduction

In the past decade, there has been a rapid increase in addiction to drugs, alcohol, gambling, pornography, technology, and compulsive eating that have fueled the growth of emotional and behavioral problems in the American Muslim community[1]. Most Muslims hold the worldview that a person with an addiction problem is often the result of one's weak *iman* (the Arabic word for faith) and increasing one's faith is the only cure. They believe that addiction violates and disregards the basic tenets of Islam. Islamic scriptures provide Muslims with clear guidelines about what is permissible and what is not. For instance, the Qur'an informs Muslims:
" O you who believe, intoxicants, and gambling, and the altars of idols, and the games of chance are abominations of the devil; you shall avoid them, that you may succeed. The devil wants to provoke animosity and hatred among you through intoxicants and gambling, and to distract you from remembering God, and from observing the prayers (Salat). Will you then refrain?"[2].
The above verse directly tells Muslims to abstain from harmful things such as alcohol, drugs, and gambling because these acts are from the devil that only desires to push people towards faulty things that keep one from the remembrance of God. Therefore, when a Muslim admits or is found to have an addiction problem, his or her psychological issues are rarely unearthed and the underlying reasons for the addiction problem goes unexamined. Instead, one is often preached at and told to become more religious. Unfortunately, this ostrich philosophy that religion is the only remedy to treat an addiction problem is rarely accurate.

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One phenomenon that describes the limitations of relying solely on spiritual practices to overcome problems such as addiction is known as *spiritual bypassing*, which is a phrase that describes a person who avoids dealing with negative emotions and other internal psychological issues. Instead, this person resorts to healing by using only spiritual practices and beliefs [3,4].

Therefore, the objective of this chapter is four fold. Firstly, it will provide definitions for the usage of the terms spirituality and spiritual bypassing, in relation to how it is used throughout this paper. Secondly, a discussion of spiritual bypassing traits that Muslims may manifest on the path of addiction recovery. Thirdly, the paper will share a model of the self that helps explain the importance of both spiritual and psychological development for holistic addiction recovery. Finally, it will conclude with recommendations of how therapy can be integrated and used to compliment spiritual growth.

1.Definition of Terms

The usage of the words spirituality and spiritual bypassing may have a variety of meanings. Thus, below are definitions of these words to clarify what is meant by the use of these terms in the context of this paper.

Definition of spirituality:

The word spirituality has no universal definition because the word can be applied to different contexts.

For example, one definition of spirituality is "the personal quest for understanding answers to ultimate questions about life, about meaning, and about relationship with the sacred or transcendent, which may (or may not) lead to or arise from the development of religious rituals"[5]. Another definition of spirituality is the "human yearning for divine love"[6]. For the purpose of this paper, spirituality is defined as the perpetual pain of the soul that craves for a connection with a higher power, God, and stems from an organized religion, such as Islam. Thus, the words spirituality, spiritual, religious, and religion are used interchangeably throughout this paper to refer to Islam, Islamic rituals, Islamic principles and beliefs.

Definition of spiritual bypassing:

Charles Whitefield[7], who is a medical doctor that works in the field of trauma and addiction recovery, first coined the phrase spiritual bypass. Whitefield noticed that those individuals who engage in psychological work and development were better able to improve and experience true spirituality. He also noticed that individuals who engaged in psychological and spiritual work together recovered faster from addiction related issues and were less likely to relapse. Likewise, John Welwood[8], a psychotherapist who integrates psychological and spiritual therapy, noticed that many of his clients engaged in advanced spiritual practices; however, their spiritual practices had a tendency to help them avoid facing their wounds, emotional insecurities, and pains that most likely triggered or influenced one's addiction problem in the first place. He observed that often times his patients were unconsciously using spiritual beliefs to achieve spiritual maturity while unconsciously overlooking, or bypassing, their personal and emotional problems. The person is most likely trying to resolve psychological issues at the spiritual level and does not realize that he or she is escaping the work at the other levels, such as the cognitive, emotional, and interpersonal. When this happens, spiritual practice is not integrated into the real-world state of the psyche and, as a result, personal growth is less mature than the spiritual practice.

As a noun, the term bypass means to go around, to avoid, or to proceed without reference to the core or superior issue[9]. However, for the purpose of this paper the term bypassing is preferred. As a verb, bypassing represents and implies a developmental process that a person is continuously engaged in. Thus, the phrase "spiritual bypassing" refers to a person's unconscious utilization of spiritual beliefs and

practices to go around psychological issues and emotional unfinished business, with the hope of finding inner peace through one's faith[10].

Moreover, the explosion of New Age fads like think positive, be grateful, and avoid negative people are examples of fast food spiritual remedies often recommended to people to feel better. Another mainstream fad is *the Secret,* which is a concept that centers on the attraction principle in New Age spirituality and teaches people that whatever one imagines one will manifest. The belief is that a person attracts what he or she believes. Thus, if an individual believes he or she is poor then the person will most likely live poor. Whereas if a person is content and grateful, the Secret experts suggest that the person will attract more money and positive experiences. People are also preached catch phrases like "don't take it personally", or "whatever bothers you about someone is really about you"[11]. However, these fads have helped to further promote a fast-food spirituality culture of drive-through offerings that only temporarily help one feel better. These fads have also misguideda person that becoming more spiritual is the cure to any problem. As a result, the individual never seeks help for internal issues that he or she rarely understands. One merely escapes internal issues and pain by numbing problems with quick fixes like think positive or avoid negative people. When this happens, an individual is unable to fully live an authentic and genuine life because his or her issues are constantly lingering in the background. These quick fixes and easily blurted expressions actually repress one's painful issues and impact one's ability for holistic development that is necessary for true fulfillment[12]. Moreover, others are told to simply increase their Islamic practices and preached to pray more, to give more charity, and to read more Qur'an. One's spiritual practices may make one feel better, but often times it is only temporary. Individuals will most likely continue to experience frustration and disappointment because the issues that he or she is trying to escape, via their addiction, still remains internally and will continue to haunt them. One has to first become aware of these issues, and then take steps to overcome them. There are no quick fixes for fully healing one's repressed issues and childhood wounds. The process of transformation takes time and people need to be educated about the complexity of this process, rather than be given false band-aid fixes that rarely resolve or just scrape the surface of one's issues.

Furthermore, the literature that discusses spiritual bypassing is scarce. So not only is there limited research about spiritual bypassing, but also there is no research about this topic from the Muslim perspective.

The literature also references other phrases that allude to the concept of spiritual bypassing. For instance, Trungpa[13] coined the term *spiritual materialism*, which is the practice of strengthening the ego by accumulating more spiritual experiences and by shopping around for diverse spiritual practices without commitment to a specific tradition. Spiritual materialism can be experienced by both practicing Muslims that understand Islam properly and by Muslims who may have had blind faith growing up. Regardless if one is applying Islamic practices properly or if one is merely implementing what one was taught growing up, spiritual materialism most likely occurs when one feels a sense of superiority over others or holier than others because one is doing a lot of spiritual activities. Another phrase is *bullet-proof faith*, which suggests that a person has strong faith in a God that cannot be stirred no matter what happens to him or her. Another phrase *premature transcendence* is also known to be synonymous with spiritual bypassing, which alludes to a person who engages in spiritual practices to rise above psychological issues that are internally stored, silent, and remain unresolved[14].

Ultimately, one's unresolved issues continue to haunt them and get acted out, which results in immature and half-baked spiritual practices.

In summary, in the context of this chapter, the phrase spiritual bypassing will be used to describe Muslims who turn only to their Islamic beliefs and practices to overcome an addiction problem. These persons do not address or examine their internal psychological issues that most likely contributed to their addiction related problems in the first place.

The next section will discuss in more detail how spiritual bypassing may manifest.

2. Traits of Spiritual Bypass on the Path of Addiction Recovery

Most Muslims are taught to believe that the Qur'an and *Sunnah* (authentic prophetic traditions) contain the tools and keys for how they should govern their life and enhance their overall character. Many accept that everything that happens in one's life is a direct result of God's will, especially crises, illnesses, and losses. For instance, this verse from the Qur'an informs Muslims, "*Nothing will happen to us except what Allah has decreed for us: He is our protector'*: and on Allah let the believers put their trust"[15].

Further, devout Muslims are instructed to trust that calamities, problems, and illnesses are a means to get closer to God. As a result, many Muslims are preached at and told that he or she should embrace their problems because one's issues are a means to "cleanse, purify, and balance…on the physical, emotional, mental, and spiritual planes"[16]. Thus, psychological or mental health issues such as addiction are considered a test from God[17]. For instance, if a person has feelings of anxiety, depression, and shame that resulted from some type of addiction, then he or she is often taught to believe that this problem should be used as an opportunity to reevaluate his or her life and increase their Islamic practices.

In addition, for many Muslims, a person's family or religious leader (known as an *Imam*) is often seen as the resource to go to when a person experiences a life problem, calamity, or issue. One research study found that Muslim participants were more likely to consult religious leaders for help re their mental health issues and that only 11% of participants reported that they would seek treatment from a mental health professional[18]. However, many religious leaders find themselves being consulted about psychological issues that they do not have formal education or training in. As a result, Muslims do not get the proper treatment and guidance needed for healthy recovery or development. Often religious leaders will prescribe to someone with an addiction problem the need to engage in more Islamic rituals and practices. However, recent research suggests a person's religious beliefs and practices may hinder sustainable recovery [19]. Instead, religious leaders could serve as mentors to refer addicts to professional counselors or mental health professionals that are better equipped to help the individual.

Correspondingly, when an addict is in the process of recovery and is engaged in spiritual bypassing, it can manifest itself in different ways. For instance, it may appear as an obsession with a spiritual leader or religious scholar, which most likely leads to the development of blind faith in spiritual gurus or mystics and social seclusion[20].

This unquestioning faith may lead one to renounce personal responsibility by passively relying on religious leaders to resolve psycho-logical problems, which can, over the long haul impede functioning in the modern world. One may also demonstrate a zealous preoccupation with reciting the Qur'an, supplications, prophetic sayings, or other Islamic literature that he or she rarely did before. In essence, increasing one's religious activities is not wrong and is highly encouraged for every Muslim to do. However, the concern is when these Islamic practices are done in isolation and not complemented with psychotherapy or psychiatric help. It is now believed that both spiritual and psychological work are needed for addiction recovery.

In addition to spiritual engagement, Muslims need to gain more knowledge about the complimentary role that therapy can have in helping them fully recover[21].

More specifically, Cashwell, Myers, and Shurts[22] identified three different types of people that use spiritual beliefs to prevent or avoid facing their psychological issues. These are *the Good Servant*, *I Have a Gift,* and *Turn the Other Cheek*. As a Muslim, the *Good Servant* type may be someone who tries to overcome an addiction problem by spending a lot of time volunteering at the mosque and participating in spiritual events and activities. This person most likely exhibits traits of compulsive goodness and is

someone who is extremely kind, helpful, considerate of others, and goes out of his or her way to do good. The second type, *I Have a Gift,* is most likely a person that believes he or she has been guided by God and is extra special. This person will dismiss their addiction behavior and pacify the addiction as something that was temporary. As he or she turns to spiritual practices, the persons will rationalize that their addiction may be a way to bring them closer to God. Thus, they are special and God is watching over them.

The third type, *Turn the Other Cheek,* may resemble a Muslim who has an addiction issue because of historical pains and issues associated with not being able to express him or herself. This person internalizes his or her feelings and negatively acts out feelings, by indulging in drug or alcohol abuse. The person generally has an addiction problem because the addiction to some type of substance helped to numb the person's pain. For instance, if while growing up, a person did not feel loved by his or her parents, this person most likely would have avoided getting close to people and did not feel comfortable expressing his or her feelings. If one is unable to express him or herself then the person feels unimportant and not valued. When one is not heard, one feels bad and has internal disarray. Thus, instead of confronting his or her pain and admitting the need to be valued and heard, the person numbs these needs by turning to drugs or alcohol as a temporary escape to feel good. Thus, on the path to addiction recovery, this person will rarely be able to express his or her needs, how he or she feels, and will not confront others when wronged. Instead, he or she may follow Islamic beliefs and teachings, such as this verse, *"Those who spend (in Allah's cause) in prosperity and in adversity, who repress their anger, and who pardon men, verily, Allah loves the al-Muhsinun (the good-doers)*[23]*"*

However, Muslims need to understand the depth of what is meant by Islamic teachings that emphasize forgiveness and pardoning others. The ability to truly forgive someone requires the removal of any ill feelings towards a person who has wronged him or her. One should not hold grudges or have any animosity towards another person. One should also not talk negatively or have negative thoughts about another person. This requires one to have a purity of heart and is often difficult for one to achieve without having addressed past pains of not being heard, valued, and respected.

Furthermore, it is important to note that it is not always easy to detect spiritual bypassing because it can take the guise of other positive traits, such as being extremely polite and nice or being overly charitable. At the same time, the person is inconsistent with these extreme positive traits and will at times demonstrate sudden moments of frustration, anger, or irritability. These traits only further validate the existence of repressed and unresolved negative emotions. Thus, the seemingly more devout Muslim is not congruent and does not experience the continuous inner peace of leading a more spiritual life. Instead, the person on the path to recovery and engaged in spiritual by passing may exhibit traits of being judgmental of others, having a holier than thou attitude, critical of those who do not practice, morally harsh, and insensitive[24]. Also, a person may become obsessed with increased religious activities, which serve as a way for the addict to feel in control or to contain negative emotions. The addict in this case is simply replacing a negative addiction under the guise of a more positive addiction, a spiritual one. This faulty replacement only helps the person further mask his or her historical wounds and issues[25]. The following section will elaborate on the concept of holistic development for sustainable addiction recovery.

3. Holistic Development for Addiction Recovery

More and more psychological experts are recognizing that spirituality is essential and can tremendously help one overcome an addiction problem[26]. For instance, Carl Jung[27], a famed psychologist, believed that spirituality might be the best solution for a person with an addiction problem and explained that addiction is most likely a sign of a deep spiritual yearning that is missing in one's life. Thus, from a deep psychological standpoint, a person's search for

spirituality is a sign of seeking completeness of the soul. Many recovering individuals point to their spiritual lives as being central to their abstinence. Specialists on addiction recovery describe successful programs, such as the 12-step addiction recovery plan, as a spiritual revival program that encourages the person to return to their faith and find greater meaning in their life[28].

Robert Assagioli[29], who created the transpersonal model of psychosynthesis, also agreed with Jung that people experience conflicting impulses on an ongoing basis. They often fluctuate between the desire for security, and the "tendency towards growth, self-assertion, and adventure"[30]. In essence, new drives are continuously being awakened that challenge previous ones. Assagioli asserts that during adolescence one is likely to awaken new motivations. Then in middle age one is more likely to awaken more spiritual or religious aspirations. It is these aspirations that are at the heart of spiritual bypass that an addict on the path to recovery may focus on. A person's spiritual development is not an easy or short process; it is a long and difficult journey that requires continuous self-awareness, self-regulation, and self-development. If a person neglects psychological growth and focuses only on spiritual amplification, this only makes the process more complicated.

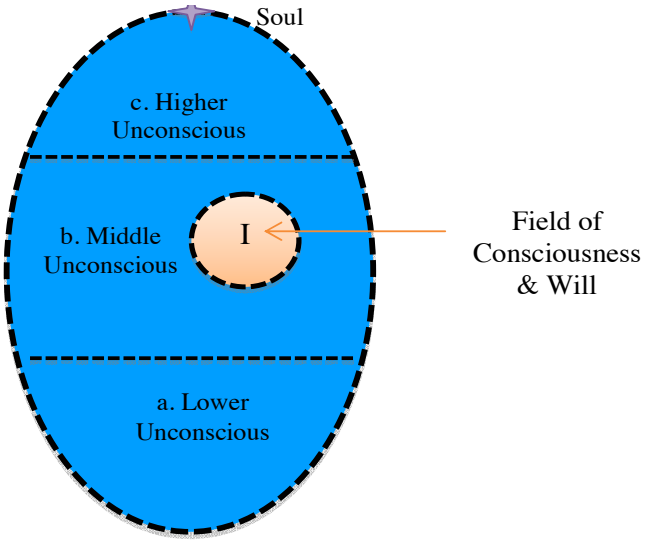
While spiritual practices can help an individual address cognitive and behavioral dissonance, the person must have a secure psychological structure that he or she is grounded in. Welwood assessed that this grounding is:

Psychological and not spiritual work.

It means working with needs, scripts, hunger for love, fear of love, fear of loss of love, fear of receiving love, fear of giving love, and establishing a sense of self-respect, which is not overwhelmed or crushed by other people's opinions[31].

Moreover, John Engler coined the phrase "you have to be somebody before you can be nobody"[32], which emphasizes the need to strengthen the ego before transcending it. Many addicts who are attracted to spiritual practices misguidedly bypass confronting historical wounds and assume that they need to forego any type of self-grounding or psychological development of a secure structure. However, spiritual bypass is more of a false sense of transcendence that bypasses psychological issues and often entails avoiding or denying one's shadowy side. Within the Muslim community, there is a strong need to raise awareness of the constructs of the self and the importance of holistic development. When a person increases spiritual practices without examining psychological issues then he or she is most likely creating psychic fragmentation, not holistic development. In an attempt to explain more vividly the constructs of the human psyche and its complex part, Assagioli's oval model or "egg diagram[33]" (Figure I) is illustrated below:

Figure I. Assagioli's Structure of the Psyche.



In *Figure I: Assagioli's Structure of the Psyche*, Assagioli suggested that the unconscious has three main levels: (a) the lower unconscious, which can be thought of as Jung's personal unconscious and Freud's unconscious area of drives and passions, as well as childhood repressed experiences, anger, and traumas; (b) the middle unconscious, similar to everyday waking state of consciousness that contains easily accessible memories and skills, labeled by Freud as the preconscious; (c) the higher unconscious, or super-conscious is the region where more spiritual, mystical, or higher values reside. For Muslims, the higher unconscious area

is the area that houses one's Islamic beliefs and values. This area also houses creativity, intuition, and the drive for meaning, and purpose. In the center of the middle layer, signifying the middle unconscious is a circle that represents one's immediate conscious field of awareness that the "I" operates in.

Although the model places the soul on the top of the diagram, the soul is an aspect of the self that is "center of the entire psyche. The soul can be said to pervade all of the oval . . ."[34]. In this model, the lines are dotted to signify that the different layers are permeable and can influence the "I". However, this requires a more conscious understanding of the constructs of the self and the importance of integrating these parts for healthier development. In the case of an addict who has turned to Islamic practices for recovery, he or she is most likely functioning using two of the three areas, the upper unconscious and the middle unconscious. Thus, the person is engaging in spiritual bypassing because one is most likely unaware of the lower unconscious area. As mentioned previously, the lower unconscious area is the area that stores one's historical issues and wounds that are often repressed and the person is unaware of. In viewing the diagram, one is able to see that in dismissing or ignoring the lower unconscious altogether the individual is not able to become whole, which is needed for psychic unity.

Moreover, this thinking is in alignment with Freud's psychological discourse, which emphasized the impact of one's unresolved conflicts that are repressed in the unconscious and that there are psychological hazards of not addressing these past issues[35]. These unsolved conflicts cannot remain unknown and over time create internal psychic dissonance, which might result in serious pathological outcomes.

Freuddisclosed that the "patient does not remember anything of what he has forgotten and repressed, but acts it out. He reproduces it, not as a memory but as an action"[36]. In essence, Freud is telling us that people do not recall the repressed material; he or she simply repeats it unconsciously and acts its out in unhealthy ways, such as in addiction related behavior.

The next section will elaborate in more detail on using both spirituality and psychological practices for more holistic development.

4. Using Both Spiritual Practices and Therapy

Unlike traditional cognitive and behavioral methods, there is a greater need to look at a more integrated use of treatment that takes into account both spiritual and psychological solutions[37]. Cognitive behavior therapy does not necessarily help to diagnose or determine one's unconscious or conscious drivers[38]. As a result, a person's problems go undiagnosed and leave wounds pending while allowing one to act in ways that may appear to be satisfactory. Essentially, the heart of spiritual bypassing is predominantly unconscious, or as Assagioli defined it, the lower unconscious, which contains repressed material, developed from early childhood experiences, and later covertly affects one's spiritual intentions and overall development. For example, The Adverse Childhood Experiences (ACE) study suggests that early childhood trauma such as abuse or continuous neglect by parents often results in children engaging in addictive behavior during adult life[39]. Researchers suggest that a child who suffered abuse will most likely store the abusive memories in the lower unconscious. As one progresses through life, one never faces the pain and hurt from the abuse. This pain in the lower part of the unconscious lingers silently and stirs internal disarray. To alleviate this disarray, one turns to drugs or alcohol as an analgesic from reliving, confronting, or acknowledging the pain. In most situations, the person is often unaware of the unconscious influence that is fueling his or her addictive behavior.

In order to acquire self-awareness of lower unconscious issues, one can begin by seeking professional help to evaluate their destructive behavior and learn about unconscious issues that is hindering growth. Yet, within the Muslim community this poses a challenge because there tends to be a general taboo associated with seeking therapy to examine or understand one's addiction behavior. This attitude is most likely a result of the cultural shame and negative

stereotypes associated with seeing a therapist or getting any type of psychological help. In addition, many Muslims simply do not know what resources to turn to or how to go about dealing with their addiction related issues. There is a necessity for Muslims to make a more conscious effort to understand and resolve their psychological issues that trigger their addiction behavior.

Applying religious values and principles, while ignoring necessary psychological development and work, will most likely continue to create internal disarray and discord[40]. In addition, ignoring psychological work will also result in incomplete spiritual practices because one's psychological issues will most likely continue to blindly impact one's spiritual practices. For example, there are many Muslims who understand Islam properly and are extremely devout. However, it is not uncommon to hear that these very same people are guilty of domestic violence, drug abuse, or other wrongful acts that go against Islam. These individuals most likely have undiagnosed or untreated psychological issues that they are unaware of, but yet they continue to act out in ways that negate their Islamic beliefs.

Muslims too often approach an addiction problem with a nonchalant response that it is a sin and one needs to just obey Islamic teachings. It is common to hear one say to a person with an addiction problem to fear God (Allah) and the problem will go away. Unfortunately, this simplistic attitude is limiting and does not solve the problem.

Telling one to just become more religious and follow Islamic rules, allows a person to avoid examining or taking responsibility for their addiction issues. Research also demonstrates that social support is instrumental in the addiction recovery process. However, most Muslims are not comfortable talking about their addiction issues with close family or friends for fear of being reprimanded, ridiculed, or shamed. In fact, many Muslims are taught to not publicly discuss or disclose their faults. For instance, the following prophetic tradition tells Muslims to not disclose your sins. Abdullah Ibn Masoud (radiyallahu anhu) related, "A man came to the Prophet and said: "O Messenger of Allah! I have mingled with a woman in the far side of al-Medina, and I fulfilled my desire short of actually having sexual intercourse with her. So, here am I, judge me according to what you decide." Umar Ibn al-Khattab (radiyallahu anhu) then said: "Allah had kept your secret, why did not you keep your secret?[41].

As a result, most Muslims internalize or suppress their issues and do not seek social support or professional help for fear of being humiliated or scorned. Unfortunately, a person that attempts to overcome his or her addiction problem by turning only to spiritual practices will still experience challenges because hidden emotions and issues that triggered the addiction remain unaddressed.

On the surface it will appear to others that the person is getting better, but in reality the person's psychological wounds that prompted the addiction are never dealt with. For many individuals who struggle with an addiction problem, such as substance abuse, alcohol, pornography, etc., the addictive behavior often serves to suppress unwanted issues that the person is often unaware of. Historically, therapy did not integrate spirituality as part of the healing process. However, the growing practice of incorporating spirituality in therapy presents both opportunities for better healing and potential threats of helping clients bypass psychological issues. Thus, as stated earlier, spiritual bypass happens when a person turns to his or her religious rituals and dismisses examining the cause of one's unhealthy behavior or negative emotions. In the short-term, spiritual bypass may be beneficial because it provides a coping platform for a person to begin the recovery process. However, in the long-term, a person needs to become aware of and face his or her psychological issues that most likely influenced the addiction to begin with. To do this requires that Muslims embrace professional counseling and therapy as a formal science that can help one understand his unconscious drives and emotional issues. The following are some recommendations for facilitating the integration of spirituality and psychotherapy on the path to addiction recovery.

1. Educate: spiritual leaders, educators, medical professionals, counseling and mental health experts need to make a more concentrated effort to debunk negative stereotypes of psychotherapy, counseling, and mental health services. In addition, there is a need to educate Muslims how psychotherapy compliments spiritual practices, as well as how seeking psychotherapy can help expedite the recovery process long-term.
2. Motivate: Muslim community leaders and professionals need to lead the way and set up organizations or recommend therapists that are skilled in helping Muslims get the necessary psychological addiction support and assistance needed. The combination of psychology and Islam will allow one to address the root causes of an addiction problem and aid in more holistic development. Failure to do so will often result in a relapse and the person returning to the addictive problem or picking up an alternative way to act out unresolved problems.
3. Engage: A skilled therapist can effectively work with individuals who demonstrate spiritual bypassing because they can "hold and value both sides of the dilemma"[42]. The therapist and client dyad can have a powerful effect that facilitates a "flow of energy and information"[43] that expedites the healing process, and ultimately transforms the client.

Conclusions:

There is a growing phenomenon of people turning to spiritual practices and beliefs to remedy addiction related issues; however, many are most likely experiencing spiritual bypassing by avoiding their pains. Islamic scriptures, teachings, and practices serve to provide Muslims with clear guidelines and rules to live a successful and peaceful life. At the same time, to resolve an addiction problem properly, one needs to take a holistic development approach that includes increasing both spiritual and psychological activities. Failure to understand one's psychological issues to address an addiction problem will result in immature and half-baked spiritual practices because psychological issues that triggered the addiction problem remain unaddressed.

The belief is not that one's religion cannot help, but rather the healthiest and most sustainable form of addiction recovery includes using both spiritual and psychological efforts. For instance, the Quran and *Sunnah* (prophetic) are used to provide one with principles and rules to live one's life by and professional counseling could be used to help the person understand why he or she may have difficulty applying these principles. Also, a person needs some type of support to openly discuss their desires, fears, and emotions, which is often not readily available in one's local community. Thus, the main goal is to educate Muslims that psychotherapy and counseling can serve to enhance a person's spiritual beliefs, not take away or replace religion. Furthermore, the therapist's role is instrumental in the healing process, especially for Muslims who do not openly feel safe discussing their problems with close family and friends. Mental health professionals have the ability to develop secure relationships with clients that are essential in helping clients open up and tackle difficult emotions repressed in their unconscious mind. Clients advanced in their spiritual practices will attempt to bypass emotional discomforts and prefer to work at the spiritual level. Historically, therapy did not integrate spirituality as part of the healing process. However, the growing practice of incorporating spirituality in therapy presents opportunities for better and more sustainable healing.

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HARM REDUCTION STRATEGY IN THE TREATMENT OF ADDICTION IN THE CONTEXT OF ISLAMIC JURISPRUDENCE

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Abstract:

The recreational use of intoxicants in contemporary society is common and widespread and its use is associated with a multitude of harms to the individual and to the wider society. Substance abuse is a public health issue. Some countries treated addicts punitively and advocated an abstinence only approach. This approach is associated with greater harms particularly amongst injection drug users (IDUs). Harm Reduction is an alternative approach that allows addicts to continue using intoxicants, but in a less risky manner. This approach is associated with less harm. Despite its efficacy, there has been opposition to its implementation, particularly in Muslim Countries. To enlighten the Muslim doctor and patient, we discuss the philosophy and higher objectives of the Islamic law and explore how the principles of Islamic law can be applied to the Harm Reduction approach in our contemporary setting. The understanding of *maqasid-al-Shari'ah* (The Objectives of Islamic Jurisprudence) and proper application of its principles provides an ethical framework through which we can apply the Harm Reduction approach in the treatment of addiction in the Islamic context.

Keywords: Substance abuse, addiction, Islamic jurisprudence, Harm Reduction strategy, addiction treatment.

Introduction:

Substance abuse is a complex, multi-faceted phenomenon. The use of intoxicants is clearly prohibited in Islam, but in our time the use of intoxicants is wide spread and Muslims whether living in Muslim-majority or Western countries are not immune to the harms of substance abuse and drug dependency.

The traditional focus of many countries' drug policies and substance abuse services is to achieve abstinence. Addicts are encouraged to attend drug rehabilitation centers, enroll in substance abuse programs, attend support groups such as AA (alcoholics anonymous) or NA (narcotics anonymous) or rely on support of family or friends. It is expected that these individuals would maintain their sobriety. This traditional approach, while being of benefit to some, has not been universally successful. There are some individuals who do not wish to give up their substance abuse, but may benefit from using substances in a less risky manner. There are others who have repeatedly failed to address their substance abuse using the traditional approach. There are also those whose substance abuse may be so entrenched in their daily lives that abstinence may not be a realistic goal. For these individuals a different strategy is needed to manage their substance abuse. Harm Reduction is one such strategy.

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This article is not a comprehensive review of the Harm Reduction Strategy, rather it aims to raise the issue of Harm Reduction as a public health intervention within the contemporary Islamic context. We will first briefly discuss the concept and impact of the Harm Reduction strategy and reflect on the changing attitudes and policies of drug treatment in some Muslim countries. Next we will explore the *Fiqh* (Islamic jurisprudence) principles that can be applied to this approach.

Harm Reduction strategy:

There is no universal definition of Harm Reduction strategy nor is there a specific methodology for Harm Reduction. Rather, Harm Reduction is a pragmatic approach which encompasses interventions, programs and policies that seek to reduce the health, social and economic harms of drug use to individuals, communities and societies.

Substance Abuse is an issue that we cannot ignore, nor should we simply condemn individuals who engage in this behavior. The Harm Reduction approach accepts that substance abuse, whether legal or illicit, is a part of contemporary society. This does not imply that Harm Reduction attempts to minimize or ignores the real dangers associated with licit and illicit drug use. Rather, it affirms that drug users themselves are the primary agents for change. It is an approach that seeks to empower users to share information and to support each other in engaging in strategies to reduce the harms of their substance abuse.

Harm Reduction is thus a way of working towards minimizing the harmful effects of drugs and improving the quality of lives of substance abusers, while acknowledging that cessation of all substance abuse is not necessarily the criterion of success.

There is a wide range of harms that are associated with licit and illicit substances use including legal problems, crime, social deprivation, family conflict, abuse and neglect, job loss and poor physical and mental health. In addition, there are particular harms associated with injecting drugs. These include the spread of blood-borne viruses, such as HIV, hepatitis B, hepatitis C, septicemia, wound and other infections, drug overdose and unintentional injury, which may lead to premature drug-related deaths.

Harm Reduction strategies to reduce the risks associated with injection drug users may include measures such as:

- Reducing the sharing of injecting equipment by providing clean, sterile injecting equipment through needle and syringe programs (NSPs)
- Giving advice about safe injecting methods
- Providing drug consumption rooms (DCRs),
- Providing support for stopping injecting behavior
- Distributing free condoms to reduce the risk of sexually transmitted diseases
- Providing substitution opioid drugs, such as methadone and buprenorphine for heroin users.
- Providing counseling services, peer education and outreach
- promoting public policies conducive to protecting the health of populations at risk[1].

Harm Reduction and Public Health:

"Harm Reduction is an exemplar of a mainstream public health intervention"[2].

Public health is concerned about protecting the individuals' and populations' health through surveillance, identification and management of risks to health[3,4].

Contemporary public health views risk and health decision-making as a responsibility of health conscious individuals whilst also emphasizing the significance of the social environment in producing harm and in shaping the capacity of individuals and communities to avoid risk[2,4,5]. Mainstream public health approaches thus recognizes the need to create 'enabling environments' to reduce risk and to change behavior, by strengthening community actions and creating public policies which support and promote health[6]. Europe is one of the regions that is most supportive of Harm

Reduction policies and practices. Harm Reduction is a mainstream drug policy and the reduction of drug harms is a feature of the public health objectives of all the European Union Member States[2].

In 2003, the European Council adopted a recommendation to prevent and reduce health-related harms associated with drug dependence and it provided a framework for action to assist member states to develop strategies to reduce and prevent drug-related harms through the implementation of Harm Reduction services for problem drug users. The recommendation also sought to reduce the number of drug-related deaths and extent of health damage, including that related to HIV, hepatitis B (HBV), hepatitis C (HCV) and tuberculosis (TB) [7].

Harm Reduction strategies such as needle and syringe distribution and collection programs (NSPs) and substitution therapy are associated with reductions in HIV incidence and drug-related morbidity. In several settings Harm Reduction programs have been combined with voluntary counseling, testing services and antiretroviral therapy, thus improving access to medical care for injection drug users (IDUs) and resulting in reduction in risky behaviors [2,8- 13].

Minimizing the risk of drug-related harms is thus a key public health issue, both in protecting the health of drug users and in protecting the wider community.

Lessons from Spain:

In the early 1990's Spain had the largest number of AIDS (Acquired Immune Deficiency Syndrome) cases related to the injection of illicit drugs in Europe[14]. There were strict laws which limited access to opioid agonist maintenance treatments (OAMT), such as methadone maintenance treatment (MMT), in Spain during the 1980s.

Treatment programs at that time followed a drug-free approach that promoted abstinence. Residential facilities were managed by people who were not health professionals, and retention rates in treatment were low[15,16]. Consequently the mortality among illicit opioid users and other illicit drug users was high[17].

The spread of HIV infection promoted a change in legislation in Spain with new laws introduced in the 1990's changing the drug-free approach of treatment to one focused on Harm Reduction[17]. This facilitated an expansion of opioid agonist maintenance treatment (OAMT) in all regions of Spain. Methadone was available in the public health system free of charge, and was also available in private practice[17].

After the change in legislation it was reported that there was a large increase in the number of patients receiving metha-done maintenance treatment (MMT), there was a 125% increase in methadone centers, and a significant increase in the availability of MMT in prisons[17]. Syringe provision started in 1989, but it increased consider-ably during 1995–1999. By 2012 Spain had seven supervised injection centers. Retroviral treatment was widely available free of charge for all HIV-positive in Spain since 1996 and its use was associated with a reduction in progression to AIDS and a reduction in AIDS-related mortality[17,18].

Since 1999, Spain has been one of the countries with the highest levels of OAMT coverage in the world[19]. By 2010 OAMT coverage had reached 60%[20].

The change to a Harm Reduction approach in Spain and the expansion of the OAMT coverage was associated with an increase in retention in treatment programs and a parallel reduction in morbidity and mortality. The death rate per 1000 person years reduced from 59 in 1992 to 16 in 1999[17,18]. In addition, there was a steady decline in the number of new HIV cases related to illicit drug injection and an improvement in health-related quality of life for individuals dependent on illicit heroin[17].

Harm Reduction in Muslim Countries:

In their paper, "Emerging HIV Epidemics in Muslim Countries", Todd et al, discussed the emerging HIV epidemic, the cultural respo-nses and the changing government policies to

Harm Reduction strategies in three Muslim countries, namely Iran, Malaysia and Afghanistan[8].

It was reported that Iran had a punitive approach towards drug use which started in the Khomeini regime and continued until the mid-1990s. The response to drug use and drug trafficking was prison time and corporal punishment in all cases.

This was accompanied by an increase in the overall use of drugs and a shift from opium to heroin use and from smoking to injecting drugs.

Furthermore, the incarceration of large numbers of drug users, resulted in prison crowding, and created an ideal environment for injecting and sharing of needles, which facilitated widespread HIV transmission. The compulsory abstinence-based programs in the rehabilitation camps were associated with high relapse rates and risky behavior. By 2001, it was estimated that there were between 200,000 and 300,000 IDUs in Iran, and the estimated prevalence of HIV among the incarcerated population was 7% to 20%, between 1999 and 2002[8,21-24].

Political and religious leaders in Iran recognized that incarceration and abstinence only treatment models were not successful in addressing the continued increase in the number of drug users and the rise in the rates of HIV among injection drug users. This led to a review of government policy and subsequently various Harm Reduction strategies were introduced, including drop-in centers, triangular clinics, substitution therapy and outreach based needle and syringe distribution and collection programs[8,22,25].

Malaysia previously had a similar punitive approach to drug use as Iran, with drug traffickers receiving mandatory capital punishment, imposed rehabilitation, imprisonment and corporal punishment for convicted drug users. This led to wide-spread stigma and avoidance of services by drug users due to fear of legal repercussions. Religious and political leaders also initially opposed Harm Reduction strate-gies[8,25,26].

Malaysia's zero tolerance approach to drug use failed to curb the problem, and there was a rapid increase in IDUs through the 1990's with the associated risky behaviors such as sharing needles, resulting in an HIV epidemic among IDUs.

It was estimated that by the early 2000s 75% of all HIV cases were detected among IDUs[26].

The accelerated HIV epidemic and evide-nce of successful Harm Reduction models in other countries led to the Malaysia's Ministry of Health investing in Harm Reduction programs such as condom and needle distribution and methadone main-tenance[8,26,27.] In their paper Todd, et al stated that "Afghanistan is at risk for a concentrated HIV epidemic due to multiple factors, including high rates of risky behaviors, low HIV knowledge, abject poverty and unemployment, large influxes of former refugees and displaced people into urban areas with infrastructure unable to support the population, and psychological changes related to conflict and displacement resulting in greater propensity to engage in drug use"[8].

The National Drug Control Strategy for Afghanistan, approved by President Karzai in 2003, endorsed Harm Reduction inter-venetions, including needle and syringe exchange and distribution as a means to prevent transmission of blood-borne infections among IDUs[8,28].

The challenge of Harm Reduction Strategies in Islamic countries:

The challenge of Harm Reduction in Muslim countries is that the use of intoxicants and extramarital relations are clearly forbidden in Islam and this has been used as a justification by some, not to distribute sterile needles and condoms, as it implies an approval for this illicit behavior. Others believe that infected IDUs should be punished and isolated from society and that no investment should be made towards such individuals[29].

In Malaysia there was opposition to Harm Reduction programs from religious leaders and the Islamic community. The Prime Minister of Malaysia, however, supported Harm Reduction as did the Institute for Islamic Understanding of Malaysia, which declared that Harm Reduction was a public

health issue which did not violate *shari'ah* law[8,30].

Similarly, in Afghanistan, religious leaders who are a powerful advocacy group, believe that abuse of drugs is completely forbidden, and that substitution therapy or use of opioids in the treatment of addiction is not acceptable, as Islam requires total sobriety[8,31].

Police harassment, community disapproval, lack of community support, limited Harm Reduction activities and delays in governments' recognition and response to intravenous drug use have been associated with continued risky injecting behavior and increasing HIV rates[8,11,25,32,33].

Islamic Jurisprudence And Harm Reduction:

The abstinence only approach to drug addiction has been unsuccessful in stemming the spread of HIV among injecting drug users (IDUs) and the punitive approach to drug addiction in Muslim countries was counter-productive. On the other hand, Harm Reduction programs have been found to be efficacious as a public health intervention, in both Western and Muslim countries. However, social, cultural and religious beliefs have adversely affected the implementation of these programs in certain regions.

Harm Reduction strategies include providing the addict with substitute opioid drugs, clean needles and syringes, drug consumption rooms and condoms. Islam however, prohibits the use of intoxicants and premarital and extramarital sex. This has been used as a justification against the implementation of Harm Reduction strategies by some, because they view this as approving and facilitating practices which are prohibited in Islam. Thus, in certain countries and among certain communities a conflict exists between the need to implement and support Harm Reduction strategies and the social, religious and cultural inhibitions to its implementation.

This also presents the Muslim health practitioner, practicing in these regions, with a dilemma. The Muslim health practitioner needs to respond to the growing problem of drug addiction and its related harms, but the Islamic prohibitions and the negative beliefs of religious leaders in particular regions make it difficult to do so.

In the following section we would like to present our understanding of the concept of Harm Reduction in light of the Islamic jurisprudence. It is not our purpose to delve into the minutiae of Islamic law, nor is it our intention to formulate a formal *fatwah* (Islamic legal opinion) which for an Islamic Jurist may be a relatively straightforward matter.

Rather, our aim is to discuss the broad Islamic jurisprudence principles and textual evidences (*Quran and Hadith*) that could be applied to this issue for the purpose of enlightening the Muslim health practitioner who may be delivering such services, and for the Muslim patient who may be a recipient of Harm Reduction interventions.

Thus, when examining this issue, the Islamic legal framework is our main theoretical point of departure for the justification of using Harm Reduction strategies as a public health intervention.

We shall therefore start by explaining what we mean by *Maqasid al-Shariah* (Objectives of the Islamic jurisprudence) and how scholars use it as the basis of rulings. This method is known as the *Maqasid* school of thought.

The Maqasid School of Thought:

Sheikh Yusuf al-Qaradawi, and Muslim scholars like Tariq Ramadan and Hashim Kamali are among the contemporary scholars that call for the revival of *Ijtihad* within the framework of *Maqasid al-Shari'ah*. *Ijtihad* refers to the use of reason in the application of Islamic law in a contemporary social context. These scholars hold the view that it is not sufficient for verdicts to be passed purely on the basis of classical legal texts, or apply *qiyas* (analogical reasoning) only on the basis of the *Quran and Hadith*. Instead, they postulate that one has to also take into account the Objectives of the Islamic Law. This approach is not inconsistent with the approach of the Four Imams; albeit that they applied it in an intuitive way. Imam al-Ghazali (d. 1111) was

the first to explicitly identify the Objectives of the Law, and to place them into five categories[34].

Maslahah (public welfare) refers to anything that is either useful (*manfa'ah*) or warding off something harmful (*madarrah*), and this can be achieved by preserving the Objectives of the Law, which consists of the following five principles (*usul*) in order of rank.

1. Preserving religion (*din*).
2. Preserving life (*nafs*).
3. Preserving intellect or reason (*'aql*).
4. Preserving progeny (*nasl*).
5. Preserving property or wealth (*mal*).

What ensures the preservation of these five principles (*usul*) is *maslahah*; what goes against their preservation is *mafsadah*[34,35].

Al-Ghazali went beyond the reading of rulings of the classical scholars, and expected that the jurists, in providing new rulings to new situations, should constantly keep in mind the higher Objectives of the Law. Al-Ghazali's main question is: "how one can remain faithful to the objectives of scriptural sources when implementing legal rulings (*al-fiqh*) in the field of social affairs and interpersonal relations (*al-mu'amalat*)" [35]. This fresh approach enabled the legal scholars to not only be faithful to the texts, but also to be confident and flexible with the new social contexts in which they found themselves.

The main philosophical point of departure for the *maqasid* school of thought is that all commands and prohibitions contained in the revealed text and in the *sunnah* are intended to promote the good and to benefit the human beings, and to protect them from evil, harm and suffering. The objectives of the Law should be harmonized with their contexts, thus, texts should be examined in the light of public interest. Al-Shatibi introduced a sixth objective, dignity/honour (*al-'ird*). Al-Shatibi adopted a strict conservative approach with respect to belief and worship, but adopted a flexible approach when it came to human relations (*mu'amalat*). He pointed out that although an action may be permissible, recommended, objectionable or even unlawful in itself, its status can change according to the context in which it is considered and evaluated. This point can be applied to eating pork, which is normally prohibited, but in the absence of other food, it is permitted for the sake of preserving one's life[35].

It is in this context that we wish to pose the following question: Is it permissible to provide addicts with substitute drugs which are potentially addictive and intoxicating?. Is it permissible to teach addicts safer ways to administer drugs, to provide them with clean syringes and needles, and to provide condoms to unmarried drug users? These are practices which are not normally permitted in Islam, but they are used in Harm Reduction strategies to minimize the risks that addicts pose to themselves and to the wider society.

The Objectives of the Law (*Maqasid al-Shari'ah) are* meant to promote good and to prevent harm. These are universal principles to be shared by all, and so should be considered when implementing the rulings derived from texts. This school of *Maqasid* provides an ethical framework through which we can approach the question of Harm Reduction. We should therefore distinguish what is beneficial from what is harmful; and if what is beneficial requires that we need to use substances that are unlawful (*haram)*, or to promote practices that are not usually condoned in Islam, such as providing unmarried drug users with condoms, then we should be absolutely clear that in approving the use of the unlawful substances and practices, it will be beneficial to the society as a whole. If it benefits the society in general, and it prevents harm to the general public then we have a clear case of supporting such interventions.

The modern approach to Harm Reduction is concerned with the alleviation of suffering of the patient, and in this respect it is in consonance with the Objective of the Law, but Muslim health practitioners have to also know whether what they are doing will earn the pleasure of Allah (ﷻ) or not. It is within this spirit that we want to provide an Islamic perspective to the issue of Harm Reduction. The Islamic approach is not purely utilitarian, but seeks to find biomedical solutions to problems that are logically consistent with the

Objectives of the law and the Islamic metaphysical framework.

***Maslahah* (public welfare):**

As mentioned, *maslahah* is achieved when any of the five Objectives of the Law are fulfilled, and in the interest of *maslahah* one ruling may be harmful in one instance and beneficial in another. Kamali states: "The *masalih* (plural of maslahah), can neither be enumerated nor predicted in advance as they change according to time and circumstances. Thus a law may be beneficial at one time and harmful at another; and even at one and the same time, it may be beneficial under certain conditions, but prove to be harmful in other circumstances"[36].
Scholars have quoted the following Qur'anic verses in support of *maslahah*:

"وَمَا أَرْسَلْنَاكَ إِلاَّ رَحْمَةً لِّلْعَالَمِينَ"

"*And we have not sent you (O Muhammad) except as a mercy to the worlds*"[37].

"يَا أَيُّهَا النَّاسُ قَدْ جَاءَتْكُم مَّوْعِظَةٌ مِّن رَّبِّكُمْ وَشِفَاء لِّمَا فِي الصُّدُورِ وَهُدًى وَرَحْمَةٌ لِّلْمُؤْمِنِين"

"*O mankind, there has to come to you instruction from your Lord and healing for what is in the breasts and guidance and mercy for the believers*"[38].

"... يُرِيدُ اللَّهُ بِكُمُ الْيُسْرَ وَلاَ يُرِيدُ بِكُمُ الْعُسْرَ ..."

"*Allah intends for you ease and does not intend for you hardship*"[39].
Thus, one should not stand in the way of assisting humanity towards lifting them out of suffering, nor of obstructing their healing. Qualities of mercy and compassion are divine qualities that we are encouraged to emulate in order to attain nearness to Allah (ﷻ).
Scholars have also quoted the following *Ahadith* or prophetic sayings in support of *maslahah*[36].
"No harm shall be inflicted or reciprocated in Islam"[40].
"He (the Prophet (ﷺ) only chose the easier of two alternatives, so long as it did not amount to a sin" [41].
"Muslims are bound by their stipulations unless it be a condition which turns a *halal* into *haram* or a *haram* into a *halaal*"[42].
These *ahadith* provide justification for jurists to consider what is beneficial, provided that it does not conflict with the *Qur'an and Hadith*. This permits Muslim jurists to take advantage of the concessions in the law based on the following *hadith:*
"God loves to see His concessions are observed, just as He loves to see His strict laws are obeyed" [36,43].
The *Hadith* quoted above, pertaining to the easier of the two alternatives, is significant as the immediate and total abstention of intoxicants for a number of individuals is far more difficult than a gradual reduction.
As pointed out earlier, some Muslim countries had a punitive approach to drug addiction and they adopted an abstinence only approach, but this was not effective, particularly in curbing the harms associated with injection of drugs, rather it exacerbated the problem. They later introduced Harm Reduction strategies, such as providing addicts with substitute drugs and clean syringes and needles which proved to be more effective. Here the *Fiqh* principle of the lesser of the two evils (*akhaf al-dararayn*) would apply, that is, it is permissible to provide the unlawful substance to the addict in order to reduce the harms and risks that the addict poses to him/herself and to the wider society. Another *fiqh* principle that can be applied is "necessity makes what is forbidden permissible"[35]. With the Harm Reduction approach, addicts may not achieve total abstinence, and they may still indulge in drug use, but they do so in a less risky manner, thus minimizing the harms to themselves and others.
Furthermore, by utilizing the Harm Reduction approach, there is a greater likelihood that the addict will be retained in treatment; be more willing to engage with health professionals and may be more receptive to Islamic psychological therapy which may motivate them towards total abstinence. Islamic psychotherapy requires separate discussion, but suffice it to say that ideally it should go hand in hand with medication.

As mentioned above, *Maslahah* pertains to the welfare of the society as a whole, and the Harm Reduction approach fulfils this objective. The research evidence has proven that it reduces the risks and harms to the individuals, and consequently to the society. The risky behavior of the drug addict, if not curbed, can adversely affect the society through crime, loss of employment, increased healthcare costs, breakdown of family relations, and the spread of diseases. When viewed from this perspective, Harm Reduction is a better alternative to total and immediate abstention. Needless to say, we cannot rule out total abstinence as an option. If it works for an individual, it should be applied.

Shifting the focus to the Objectives of the Law allows us to view the matter in a broader ethical perspective.

This would facilitate a more constructive and harmonious understanding between the Muslim jurists and medical-scientific community and it would allow Muslim jurists to pass rulings that are more flexible and realistic to our contemporary context.

All legal rulings that are clear and decisive in the Qur'an, are applicable for all times.[36] The prohibition of alcohol falls under this category, but when it comes to preservation of life, when there is no alternative, concessions have to be made, as in the case of consuming pork when no other food is available.

With respect to alcohol, even if permissible drinks are available, some jurists have made concessions where alcohol is used for medicinal purposes. Drug-abuse, like wine, leads to intoxication, so it is clearly prohibited in Islam. This is applicable to the individual, but when the use of these substances has implications for cure, and for the potential preservation of human life, or for benefit to the society as a whole, then that may be a different matter.

Substance abuse, can adversely affect the objectives of Islamic Jurisprudence, which are there to protect the individual's life, religion, progeny, wealth, intellect, and even dignity. Addicts are likely to neglect their religious practices, place their lives and those of others at risk, compromise their intellect, destroy their families, and lose their wealth, property and dignity. If Harm Reduction strategies can prevent such harms to the individual and to the society then they can be made permissible on the grounds that they are fulfilling the Objectives of Islamic Jurisprudence.

A Graduated Approach:

During the early period of Islam, there was a graduated approach to reducing the use of alcohol amongst the population, rather than an immediate and absolute prohibition. This is evidenced by the extended period over which the verses which dealt with alcohol (intoxications) were revealed and the content of the verses.

The first verse coveys the message that there is more harm than good in alcohol:

"يَسْـأَلُونَكَ عَـنِ الْخَمْـرِ وَالْمَيْسِـرِ قُـلْ فِيهِمَـا إِثْـمٌ كَبِيـرٌ وَمَنَـافِعُ لِلنَّـاسِ وَإِثْمُهُمَا أَكْبَرُ مِن نَّفْعِهِمَا ..."

"They ask you about wine and gambling. Say, in them is great sin and [yet, some] benefit for people. But their sin is greater than their benefit"[44].

The next verse regarding alcohol warned the believers not to attend prayers while intoxicated.

"يَا أَيُّهَا الَّذِينَ آمَنُواْ لاَ تَقْرَبُواْ الصَّلاَةَ وَأَنتُمْ سُكَارَى حَتَّىَ تَعْلَمُواْ مَا تَقُولُونَ..."

"O you who have believed, do not approach prayer while you are intoxicated so that you know what you are saying[45].

The believers would thus have had to reduce the frequency and quantity of their alcohol consumption if they wanted to attend prayers without being intoxicated.

Finally, only during the Medina period was the conclusive command prohibiting alcohol revealed:

"يَا أَيُّهَا الَّذِينَ آمَنُواْ إِنَّمَا الْخَمْرُ وَالْمَيْسِرُ وَالأَنصَابُ وَالأَزْلاَمُ رِجْسٌ مِّنْ عَمَلِ الشَّيْطَانِ فَاجْتَنِبُوهُ لَعَلَّكُمْ تُفْلِحُونَ"

"O you who have believed, indeed, intoxicants, gambling, [sacrificing on] stone alters [to other than Allah], and divining arrows are but defilement from the work of Satan, so avoid them that you may be successful"[46].

Yusuf bin Mahk narrated that Aisha (RA), the mother of the believers said:" If the first thing to be revealed was: "Do not drink alcohol" the people would have said:"We will never leave alcohol", and if it had been revealed, "Do not commit fornication" they would have said "we will never give up fornication"[47].

The consumption of alcohol was widespread practice amongst the pre-Islamic Arabs and according to the narration from Aysha (RA) had alcohol been prohibited from the outset, the immediate response from the people would have been negative, and they would not have desisted from this practice and it may have prevented them from accepting Islam. The Quranic verses and the narration of Aisha (RA) indicate that the methodology adopted in the early stages of Islam when dealing with the use of intoxicants was quite similar to the modern day Harm Reduction approach. Both approaches did not have abstinence as the primary goal and they allowed individuals to continue using intoxicants for a rather long period of time. This facilitates the long-term engagement of those individuals during which the focus is on motivating them to change, but without compelling or imposing changes on them from the start. From an Islamic perspective, the gradual prohibition of alcohol allowed people to initially accept Islam without having to change their drinking behavior and it provided the population time to work on strengthening their belief and faith (inner change) so that they were ready to give up alcohol when the laws prohibiting its use were revealed (external change).

In a similar manner contemporary health professionals who adopt the Harm Reduc-tion approach use various Harm Reduction strategies, motivational interviewing tech-niques and other psychological techniques to gradually shift the addict from a state of high risk use to using substances in a less risky manner, from using substances frequently to less frequent use and from having a chaotic lifestyle to having more stability.

It is essential that ordinary people do not confuse this temporary permissibility to use drugs in a specific context with the usual Islamic legalization which prohibits the use of intoxicants. There is no dispute in Islam about the prohibition of intoxic-ants such as alcohol or drugs and no Muslim can be excused from abusing them, but here again, we have to consider the intentions of the Islamic law which is to protect the individual and the society. Addicts are responsible for their actions and the use of intoxicants is prohibited and sinful in Islam, but we also approach the matter from the point of view that addiction is an illness, a disease, thus the addict requires treatment and not punishment. Treatment for addiction can include Harm Reduction strategies, thus from a *Shari'ah* point of view, this makes the impermissible, permissible. Furthermore, Islam teaches us compassion towards the sick, no matter the cause of their sickness and it is not the duty of the health practitioner to pass moral judgments, but only to care for the patient.

Conclusions:

First we discussed the principles of the Harm Reduction and presented evidence of its efficacy as a public health intervention in non-Muslim and Muslim countries. We also pointed out that a punitive and abstinence only approach which was implemented by some countries was not only unsuccessful, but was also associated with greater harms. Despite the efficacy of Harm Reduction strategies, it had been a challenge to implement it in certain regions, due to opposition from religious leaders. We then discussed the Islamic theoretical legal framework and the higher objectives of the *Shari'ah*. We explored how this could be applied to the Harm Reduction approach and we demonstrated that Harm Reduction is consistent with the philo-sophy and the higher objectives of Islamic law. The Muslim doctors and patients should thus have a clear conscience that they are acting within the Islamic legal framework. With regards to the prescribing of such substances, the consumption of it and the promotion of practices which reduces harms to the individual and to the wider society. In an ideal Muslim society, we envisage that addicts should be managed in a comprehensive

program that integrates medical, psychological and spiritual care, with the aim of motivating and supporting individuals to change their behavior and restoring their moral and spiritual values so that they may ultimately achieve complete abstinence. Such programs would need to be accessible, non-judgmental, offer incen-tives, and provide a degree of supervision to ensure retention in treat-ment, minimize non compliance and reduce the risks of those individuals to themselves and to the wider society.

As Muslim scientists and health professionnals we practice in a dynamic environment where we are routinely presented with novel information and evidence from research, which shapes our ever changing practices, and as a result we are confronted by many new ethical and moral dilemmas. We thus need an appropriate and ongoing dialogue with Muslim jurists, particularly where there is a lack of agreement or understanding on contemporary issues. As scientists and health professionals we need to understand that, when issuing a *fatwa*, Muslim jurisprudence scholars have *Shari'ah*-related considerations that may be not always clear to us. However, we hope that when considering contemporary issues like Harm reduction, Muslim scholars would take account of all of the relevant factors and evidences, and respond to these contemporary challenges, not through rigid following of *mathahibs*, but by also keeping in mind the higher principles of the *Shariah* and the relevance of the *Qura'n and Hadith* in relation to the new contexts and contemporary challenges, when passing verdicts on such matters. We believe that there needs to be a harmonious, integrated, dialectical and dynamic relationship, between the *Quran and Hadith* and the context (i.e. the contemporary challenges that faces this *Ummah*) so that novel rulings and solutions could be found, which fulfils the objectives of the *Shari'ah*.

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ISLAMIC PERSPECTIVES ON PROPHYLAXIS AND THERAPY OF ADDICTION

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Abstract:

Addiction, or substance dependence, is a global dilemma affecting societies in varying degrees with grave consequences on health, psychosocial and economic aspects.
Worldwide programs to prevent or to manage addiction have been, to a large extent, disappointing with no light at the end of the tunnel.
In this paper, the salient features of substance abuse, their main underlying causes, as well as the social, medical and governmental responses and attitudes of prophylaxis and management of addiction will be reviewed.
The Islamic approach to alcohol, the earliest addictive substance, will be illustrated, as an example of a historical effective success.

Keywords: Addiction, alcohol abuse, Islamic *Shari'ah*.

Introduction:

Allah (ﷻ) created humans in the best of moulds with perfection of structure and function of all organs, and delicate balance between its various components including microconstituents. This perfection includes brain functions with various intercellular neurotransmitters[1] and other factors. The brain performs various functions utilizing an intricate and extensive number of cells and factors, with extremely delicate systems, the breakdown of any of them, by any kind of imbalance, will induce functional derangements of thinking, emotion, memory, concentration, perception or hallucination[2].
Proper and balanced nutrition, and vascular nourishment of the brain, are major factors that maintain normal brain function[3]. Any unhealthy addition, such as a medication or a psychotropic substance causes significant derangements and deleterious influences on brain functions[4].

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Substance addiction is an outcome of the effects of a certain drug as the body systems have to adjust to the substance by incorporating it into "normal" body functioning[5]. The opioids, as an example, produce their effects by binding to different types of receptors in the central nervous system (CNS).

Endogenous opioid peptides (i.e. enkephalins, endorphins and others) appear to function as natural ligands for opioid receptors. There is evidence that these natural opioid peptides are involved in the production of euphoria, analgesia and other effects of the opioids[6]. This state creates the conditions of tolerance and withdrawal. Tolerance is the process by which the body continually adapts to the substance and requires increasingly larger amounts to achieve the original affects. Withdrawal refers to physical and psychological symptoms experienced upon reducing or discontinuing the substance.

These symptoms generally include, but are not limited to anxiety, irritability, intensive craving for the substance, nausea, hallucinations, headaches, cold sweats and tremors. Once physical dependence has been established, a strong desire emerges to avoid the negative affective states associated with withdrawal. Withdrawal symptoms are usually severe and intolerable, and manifest the opposite feelings of the original effects of the addictive drug[6]. There is ongoing scientific debate on biological mechanisms of addiction. Genetics, family history, mental and personality disorders, environmental factors and social interactions are among various theories of addiction[7], which are continuously evolving. Several brain regions are involved in the biological mechanisms of addiction. Mentally effective substances are subdivided into three main categories[8]:

- CNS depressants, e.g. alcohol, opiates, sedatives and hypnotics.
- CNS stimulants, e.g. amphetamines.
- Hallucinogens, e.g. Lysergic acid diethylamide (LSD).

Addictive substances are also divided into natural substances (alcohol, opiates, cannabis), and synthetic (sedatives and analgesic medications).

An epidemiological overview:

Since the dawn of history, man embarked on consumption of addictive substances, starting with alcohol. Whenever a new addictive substance is discovered and used, man diligently propagated it, included it in industries, marketing and business transactions. Man also surrounded such substances with rituals, rites and traditions.

In contemporary times, humanity is witnessing the worst and the largest numbers of addicted individuals and addictive substances.

Media, advertisement, feasibility of travel and transport and mounting psychological pressures provide major incentives to addiction. Some individuals with psychological and psychiatric disturbances usually resort to addictive substances in attempts to rid themselves of their symptoms, such as anxiety[9-11], or to avoid consulting a psychiatrist in order to avoid stigmatization.

Medical practitioners may also play a negative role by over-prescribing of sedatives, hypnotics, stimulants and analgesics. The most significant factor, however, is the abundant availability, as well as the accessibility of some major addictive substances. Alcohol is one major example. Many societies look upon drinking alcoholic beverages as normal and socially acceptable behavior. Even in many Muslim countries, alcohol factories, sale of these beverages in restaurants and

cafes is widespread, with nominal and ineffective restrictions. Only very few countries have legislations to ban alcohol.
Various types of tobacco smoking are alarmingly widespread, even among younger age groups and women.
Qat in Yemen and some other countries, is widely available, and its use is established as an acceptable and common social habit.
It is disturbing to note the widespread use of these freely available and accessible addictive materials to younger age groups, even teenagers. This is attributable to the influence of bad company (peer pressure), and the youngsters' desire of experimentation.

In USA, a survey was conducted from Casa, Columbia, by the National Survey on American Attitudes on Substance Abuse XVII: Teens[12], published in August 2012.
This survey aimed to identify the situations, individual and family characteristics, and social factors that are associated with teen drug abuse and addiction. Its primary purpose was to track attitudes of teens and those, like parents, who have the greatest influence on whether teens will smoke, drink, get drunk, use illegal drugs, or abuse prescription drugs.
CASA Columbia's teen surveys have consistently found that the family is fundamental to keeping children away from tobacco, alcohol and illegal drugs. Teen drug abuse plays a major role in addiction. People who do not use tobacco, alcohol or illegal drugs or misuse prescription drugs before age 21 are virtually certain never to do so. This report outlines several teen drug abuse facts and teen drug abuse statistics.
The survey found that 86% of American high school students said that some classmates drink, use drugs and smoke during the school day. Additionally, 44% of high school students knew a student who sold drugs at their school. Asked what drugs students sold on school grounds, 91% said marijuana, 24% said prescription drugs, 9% said cocaine and 7% said ecstasy. The survey also revealed that 52% of high school students said that there was a place on school grounds or near school where students can go to use drugs, drink or smoke during the school day, and 36% said it was easy for students to use drugs, drink or smoke during the school day without getting caught. 75% of 12-to-17-year-olds said that seeing pictures of teens partying with alcohol or marijuana on Facebook, MySpace or another social networking site encouraged other teens to want to party like that. 45% of teens have seen pictures on social networking sites of other teens getting drunk, passing out or using drugs, and 47% of teens who have seen these pictures said that it seemed like the teens in the pictures were having a good time.
There is no doubt that legislations and law enforcement are instrumental in curbing the spread of the addiction phenomenon, provided the drugs are legally prohibited and their availability and accessibility are curtailed. Otherwise law enforcement will have limited impact.

The Islamic Response and Guidance in Elimination of Addiction:

In the early days of Islam, addiction was rampant in Makkah society and the rest of Arabian Peninsula. At that time the addictive substance was alcohol, which was abundantly available in view of easy access, and abundance of natural substrates from food materials such as dates, grapes, barley and others. These easily available and inexpensive materials provided for deep rooted traditions of consumption, enjoyment, rituals and lack of concern to the harms alcohol inflicts on the body and

mind. With the advent of Islam, alcohol consumption was a subject matter of the Islamic guidance for protection and remedy of its various evils, taking in consideration the long term rigorous traditional endorsement of its use in society. Alcohol was dealt with as a prominent and rampant example of other addictive substances that appeared in succession in future times. Islamic teachings came in a gradual manner with guidance exposing its various vicious side effects in various dimensions. The initial step of Islamic guidance was directed towards cognitive understanding of its harmful effects in the face of general and widespread conviction that alcohol is both nutritious, healthy and joyous. The first Qur'anic verse that was revealed on that topic classified food materials into those that fall under good subsistence (*rizk hasan*), vs (*rizk* that is not *hasan*) to which alcohol belongs. Alcohol was classified as an intoxicating material.

"وَمِن ثَمَرَاتِ النَّخِيلِ وَالأَعْنَابِ تَتَّخِذُونَ مِنْهُ سَكَرًا وَرِزْقًا حَسَنًا إِنَّ فِي ذَلِكَ لآيَةً لِّقَوْمٍ يَعْقِلُونَ"

"And from the fruits of the date-palm and the vine you get out (intoxicating) drink and good food: behold, in this also is a sign for those who are wise (intellectuals)"[13].

From this verse, it became clear that the basic effect of alcohol is its intoxicating effect. That was the underlying basis on which Muslim jurists established the ruling of alcohol prohibition (*tahrim*). On that basis, the same rulings were applied to any other substance that causes intoxication, disturbance of cognition and consciousness. Such ruling is applied to all these substances based on their effects, with no regards to their chemical structure, or other laboratory or scientific means of characterization.

This was followed by the Qur'anic response to the posed notions of the apparently positive or useful benefits of alcohol. These are sedation, relief of tension, improving sleep, stress amelioration, appetite improvement, in addition to other materialistic/financial benefits such as securing jobs in alcohol preparation and market-ing….etc. The Glorious Qur'an responds to all of that in a clear and expressive manner:

"يَسْأَلُونَكَ عَنِ الْخَمْرِ وَالْمَيْسِرِ قُلْ فِيهِمَا إِثْمٌ كَبِيرٌ وَمَنَافِعُ لِلنَّاسِ وَإِثْمُهُمَا أَكْبَرُ مِن نَّفْعِهِمَا...."

They ask you concerning wine and gambling. Say: In them is great sin, and some benefits for mankind, but their sin is greater than the benefit….."[14].

This Qur'anic verse does not negate the benefits of alcohol, but it places that in the overall balance of minimal positive vs. major negative aspects. It asserts that the destructive effects surpass any benefit and confirms its classification as not to be a good subsistence.

This balancing is valid at all times, in view of proven harmful effects caused by alcohol on the physical, psychological, mental and socio-economic status of the addicted and their families.Alcohol abuse is also responsible for mental breakdown, increased crime rates, including rape, and incest, as well as increased road accidents commonly resulting in fatalities. Human experience reveals major preponderance of economic losses that far exceed any gains from manufacturing and marketing of this substance.

Later on, with the gradual Qur'anic approach of eliminating alcohol, and parallel to building up of the new Muslim personality with new Islamic value system in faith, commitment and behavior, the glorious Qur'an provided the next step:

"يَا أَيُّهَا الَّذِينَ آمَنُواْ لاَ تَقْرَبُواْ الصَّلاةَ وَأَنتُمْ سُكَارَى حَتَّىَ تَعْلَمُواْ مَا تَقُولُونَ...."

"You who believe! Approach not prayers with a mind befogged (intoxicated) so that you can understand (comprehend) all that you say (in prayer)….." [15]

This new step represented a new stage with significant prophylactic and therapeutic dimensions. It is known that alcohol half-life in the blood is approximately six hours. For the faithful who wants to perform his regular timed daily prayers, most of which are approximately 2 to 4 hours apart from noon to evening, has not to consume alcohol except following *Isha'a* prayer (late evening) or following the *fajr* (dawn) prayer. This means elimination of drinking episodes, which will interrupt the addiction requirements of around 4 drinks per day as a minimum down to only two, which may ease the, transition to abstinence with minimal withdrawal sequelae. In doing so, it becomes easier on individuals to free themselves from withdrawal consequences, as opposed to abrupt cessation which may result in grave consequences, including the possibility of lethal delirium tremens [16].

This stage of gradual discontinuation came in parallel with the progress in nurturing and building of the sound Muslim personality with genuine faith *(iman)*, sound behavior (*suluk*), and proper outlook to the paradigm of human life on this earth and the hereafter.

The fourth, and final stage came as a distinct and decisive commandment, with the Qur'anic revelation:

"يَا أَيُّهَا الَّذِينَ آمَنُواْ إِنَّمَا الْخَمْرُ وَالْمَيْسِرُ وَالأَنصَابُ وَالأَزْلاَمُ رِجْسٌ مِّنْ عَمَلِ الشَّيْطَانِ فَاجْتَنِبُوهُ لَعَلَّكُمْ تُفْلِحُونَ"

"You who believe! intoxicants (Khamr-alcohol) and gambling, dedication of stones, and divination by arrows, are abominations of Satan's handwork: Eschew (avoid) such (abomination) that you may prosper"[17].

"إِنَّمَا يُرِيدُ الشَّيْطَانُ أَن يُوقِعَ بَيْنَكُمُ الْعَدَاوَةَ وَالْبَغْضَاء فِي الْخَمْرِ وَالْمَيْسِرِ وَيَصُدَّكُمْ عَن ذِكْرِ اللَّهِ وَعَنِ الصَّلاةِ فَهَلْ أَنتُم مُّنتَهُونَ"

"Satan's plan is (but) to excite enmity and hatred between you, with intoxicants (Khamr, alcohol) and gambling, and hinder you from the remembrance of Allah, and from prayer: Will you not then abstain?"[18].

Choosing the word (avoid) has more significance than other expressions such as: (do not drink it), or (stay away from it). Avoidance includes the meanings of avoiding to manufacture, sell, buy, consume, or socialize with individuals while engaged in drinking, or even looking at the substance.

These Qur'anic verses associated alcohol (*Khamr*) along with other major vices and deviations, such as gambling, stone casting, hatred, enmity and social disruptions, as instigations from Satan.

This concept was deeply established in the conscious, mind and conduct of Muslim individuals and societies ever since. An "Internal" barrier became deep-rooted at all times.

This major turn of events was so decisive. Alcohol was absolutely eliminated from the Muslim society. The faithful committed early Muslims responded obediently. Whatever alcoholic beverages were stored in their homes were disposed of. Whatever jars and various containers that used to be filled with alcohol were destroyed. They spilled alcohol in the roadsides of Medina, while chanting prayers and expressions of obedience and faith[19].

Islam follows a similar approach towards any other addictive substance that impairs brain function, by elimination of their existence in society, in addition to building

internal human barrier towards their use. This undertaking contrasts with what we witness nowadays where inefficient and ineffective policies are based on "limitations" of the substance in certain places and age groups, which does not effectively combat the addiction problem.

Islam established a road map to deal with addictive substances along the following lines:

1.Alcohol was considered a standard criterion to judge possible addictive substances as either permitted (*halal*) prohibited (harm) or abhorred (*makruh*).

2.The underlying reason upon which a ruling is adopted toward any possible addictive substance, is its actual intoxicant influence. Any substance that imparts similar effects on man's mental processes, cognition consciousness and ability to perform his roles in this life, will acquire the same ruling as that of alcohol. The legal maxims applied in this context are:

"Any intoxicant is *khamr* (alcohol) and any *khamr* is *haram* (prohibited)"[20.]

"Any substance that causes intoxication if taken in large quantities is prohibited (*haram*) even if consumed in small quantities" [21].

Intoxication, being a significant cause of harm, whether known, unknown, or expected, falls under the broader legal maxim "No harm and no infliction of harm"[22].

3.The concept of prohibition (*tahrim*) in Islam is linked to faith and its manifestations, such as the prayers, zakat …etc. The faith authority or infleunce is a strong basis for the faithful (believer) to avoid addictive substances.

Islam established *maqasid al-Shari'ah* (the purposes of Islamic Law). These are: protection of religion, life, mind, progeny and wealth[23]. Any intoxicant substance which may negatively impact any of these purposes (*maqasid*) is prohibited (*haram*) by analogy (*qiyas*)[24].

Islam establishes the faith concept as the main prophylaxis against addiction. Faith and religious commitment stand as guardians that links alcohol and other intoxicants to evil behavior, low morality and poor manners.

In a *hadith* narrated by *Uthman ibn A'ffan* (RA), the Prophet (ﷺ) said:

"اجتنبوا الخمر فإنها أم الخبائث، أنه كان رجل ممن خلا قبلكم تعبّد، فعلقته امرأة غوية فأرسلت إليه جاريتها فقالت له: إننا ندعوك للشهادة، فانطلق مع جاريتها، فطفقت كلما دخل بابا أغلقته دونه، حتى افضى إلى امرأة وضيئة عندها غلام وباطية خمر، فقالت: إني والله ما دعوتك للشهادة ولكن دعوتك لتقع علي أو تشرب من هذه الخمر كأساً أو تقتل هذا الغلام. قال: فاسقني من هذا الخمر كأساً، قال: زيدوني: فلم يرم حتى وقع عليها وقتل النفس، فاجتنبوا الخمر، فإنه والله لا يجتمع الإيمان وشرب الخمر، إلا ليوشك أن يخرج أحدهما صاحبه".

"Avoid *Khamr* (alcohol) because it is the mother of all wickedness. In past generations there was a devout man who was approached by a seducer woman who sent her maid to summon him for testimony. When he responded and entered the woman's home, the maid led him in and locked every door behind him until he ended up to a glowing woman, with a boy and an alcohol container. The woman explained she did not summon him for testimony, and instead she gave him the choice of committing adultery with her, or to drink the wine, or to kill the boy. He choose drinking wine, cup after cup, and ended up in committing adultery with her and killing the boy. Avoid *khamr* (alcohol), for faith and drinking alcohol will never be combined unless one of them expels the other [25].

Islam imposes a worldly punishment of whipping for drinking alcohol. The Prophet (ﷺ) said:

"Flog (punish by whipping) any person who drinks *Khamr* (alcohol)" [26].

The Prophet (ﷺ) warned alcohol drinkers with punishment in the Hereafter, in the *hadith*:

" من شرب الخمر لم تقبل له صلاة أربعين ليلة وإن مات دخل النار، فإن تاب تاب الله عليه..."، وينتهي نص الحديث:"وإن عاد كان حقاً على الله أن يسقيه من ردغة الخبال يوم القيامة"، وعندما سئل الرسول: وما ردغة الخبال، قال: "عصارة أهل النار".

"Whoever drinks *khamr* (alcohol), his prayers for 40 nights will not be accepted. If he dies, he will enter hell fire, and if he repents, Allah will accept his repentance…[27].

The *Hadith* ends by:"And if he goes back to drinking, Allah will make him drink from "*radghat al khabal*" on the day of judgment" [27].

When the prophet (ﷺ) was asked about "*radghat al-khabal*", the Prophet said: "It is the extract of the people of hell fire".

The Prophet (ﷺ) made it one of his directives (*wassiyyah*) to some of his companions:

"Do not make any partners to Allah, even if you were torn to pieces or burnt, and do not drink *khamr*"[28].

In another *hadit*h, the Prophet (ﷺ) responded to an inquiry about whether *khamr* could be used as medicine: " It is a malady (disease) and not a remedy"[29].

Where Islamic Approach Succeeded and Others Failed?

The success of Islam in eradicating the alcohol habit and substance addiction in general, is manifested by the fact that Muslim societies have been largely free from addiction throughout history. Even at times when Islamic ideology lost its leadership role due to political and socioeconomic deterioration in many countries, most Muslim societies continued to be relatively safe and immune to the various disasters of addiction. Only limited instances of addiction remain in Muslim societies, with negative and condemning attitudes towards any individual who commits this rejected aberration.

In the USA, there was a determined trial to legally ban alcohol and to impose abstention throughout the country from 1919 to 1933. Unfortunately this attempt ended up in disastrous failure [30-31].

Most countries of the world, have "given up" combating alcohol use and its consequences. Alcohol consumption is legalized, with practically nominal, largely fruitless restrictions, such as avoiding alcohol while driving, prohibiting the sale of alcoholic drinks to minors (below certain ages)…etc.

Lack of commitment by the governments and individuals, alcohol industry influence and advertisement are among the main factors of failure to combat alcohol dependence in the communities. This resulted in overwhelming disastrous consequences on individuals, societies, national health, socioeconomic and other parameters.

It is an irony to note the liberalization and legalization of alcohol, while trying to combat other addicting substances which pose less deleterious consequences than alcoholic beverages.

The following may be illustrative of the differences between the Islamic and non-Islamic styles of approach:

(1) Islamic approach prevents the occurrence of addiction by stressing the individual internal motives of faith, and outlook to a righteous life. Islam aims at establishing a sound lifestyle of humans and their societies on this earth, to rid them from any behavior, habit or substance that curtail their roles in this life, including any material that impairs cognition and hampers humans from performing their sound and constructive roles towards themselves, their societies and humankind in general. It is noteworthy that, in spite of

various current political and socioeconomic influences, Muslim societies, from different regions of the world that vary in their racial / ethnic backgrounds and have different cultures, are the least affected by the problem of addiction, among all world nations. When African American (black American) prisoners with various addiction problems embrace Islam there was a remarkable change in their behaviors. Many of them turned away from drug addiction and crime, and were resurrected, as James Baldwin wrote in his book: The Fire Next Time[32] about his fellow black Americans:

"And now, suddenly people who have never before been able to hear this message of Islam, hear it and believe it, and are changed …. (Islam) has been able to do what generations of welfare workers and committees, resolutions and reports and housing projects and playgrounds have failed to do: to heal and redeem drunkards and junkies, to convert people who have come out of prisons and keep them out, to make them chaste, and women virtuous, and to invest both male and female with pride and serenity that hang about them like unfailing light" [32].

One of the main points in Islamic dealing with substance abuse is the issue of easy availability of the substance, within reach of people, which represents a formidable obstacle in all efforts to combat the problem.

In this regards, one of the principal pillars of the Islamic approach to eradicate substance addiction was to prevent the very existence of the substance in society. Taking alcohol as an example, its manufacturing, marketing, selling, buying, and any dealings was prohibited and condemned, with no exception.

The Islamic approach is based on both the "internal" value-based motives, and the "external" punishment based ones.

Building the internal value system, based on faith, purity, injunction of what is beneficial and fair, rejecting of all evil, harmful and reprehensible actions, and seeking the pleasure of Allah (ﷻ) in all endeavors…..are all instrumental in nurturing human beings' immunity to all kinds of ill-behaviors.

The Muslim society, composed of such individuals, strongly rejects substance addiction behaviors. Any individual who has any dealings with addictive substances is looked upon as "anti-society culture" that is an outcast. This overwhelming social factor stands strongly and effectively as a guard. And when this is combined with the non-availability/ accessibility, all bases of success are guaranteed.

This approach is contrasted to contemporary dealings by various authorities which are based on governmental laws and regulations with various limitations and exceptions in the context of free availability of substances, such as alcohol, tobacco, and in some countries, other addiction substances as well.

The example of alcohol is more manifest. With its free availability and accessibility, current regulations in most countries around the world, prohibit its sale below certain age limits, e.g. 18 years of age. Such youngsters could easily obtain it from their peers who are above that age limit or from their own homes, and pursue the addiction path from that early age.

Moreover, the contemporary ban on most addictive substances, excluding alcohol, is a confusing and inefficient approach that contradicts logic and medical basic facts[33], in view of the significant and widespread complications of alcohol in all strata of societies.

Substance abuse:
A disease or behavioral breakdown?

Whether addiction as an illness, or a behavioral breakdown has significant implications in legal, ethical and social contexts, but should not have any influence on medical care and rehabilitation.

Contemporary western-oriented approaches towards substance addiction is based, to a large extent, on the concept that it is a disease that needs therapy. Significant concessions are practiced to drug addicts including free provision of opiate derivatives, clean syringes to inject drugs, condoms to minimize HIV/AIDS and other infections. All such measures are provided to the addicts if they demand them. They could abandon anti-addiction programs as they deem suitable to them, and revert back to the substances of their choice. Added to the other drawback of availability of alcohol, tobacco and, in some countries, cannabis, is the lack of real effective programs to rehabilitate addicts and eradicate addiction.

All that represents the superficiality and ineffectiveness of this approach, as evidenced by what is manifest in the world scene.

The following considerations are illustrative of the implications of looking at the addiction dilemma as merely an "illness":

- Tolerance and permissiveness towards addicts to pursue and persist in obtaining addiction substances to maintain satisfaction, without fearing significant punitive measures.
- Minimization of society and state responses towards addiction. Addicts are looked upon as victims who are not fully responsible for their acts.
- Lack of legally-binding anti-addiction programs, with steady and determined approaches, is a sign of superficiality and lack of effective programs.
- Liberalization of patients commitment to anti-addiction programs will continue to boost drug trafficking and profiteering

Unlike this approach, the Islamic outlook does not neglect the medical, psychosocial and rehabilitation needs of drug addicts. It, however, considers substance abuse-addiction as a devious behavior and ethical-religious disobedience which is self-inflicted by the individuals. The addictive behavior is a result of their own decisions and their insistence to pursue it with disregard to advice, education, religious and social norms. These considerations render them liable for punitive measures in this life and in the Hereafter.

Recognized Therapeutic measures should be mandatory with the aim at complete abstention. Specialized centers, with qualified and dedicated personnel should take proper care to guarantee that therapy, which may be gradual and long-term, should end up by complete reform. Punitive measures to deviators and those who revert back to addiction should be pursued in a dedicated, persistent and controlled manner.

Proper punitive measures should be legally applied against traffickers, and distributors.

In conclusion, the Islamic approach to the substance abuse-addiction problem has unique features in aspects of prophylaxis and management. This is manifested by the recorded historical success of this approach in its dealing with alcohol abuse in the early Medina society. This approach is based on both "internal" faith-based values, as well as "external" measures, including health care systems and society-state punitive-based parameters. The Islamic approach has resulted in the achievement of a society with record

freedom from addiction and its ramifications in Muslim communities, despite many current adverse circumstances.

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ISLAMIC RELIGIOUS INPUT IN THE TREATMENT AND REHABILITATION OF DRUG ADDICTION: EXPERIENCES FROM MALAYSIA

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Abstract:

Drug addiction is a chronic relapsing disease which can be treated. Treatment however is dependent on many variables, the drug of choice, degree of drug use, individual and personality characteristics such as religiosity, community and environmental factors, familial and social support, employment and many more. Many countries employ the supply and demand reduction strategies, some of which are successful, and some are not. The advent of HIV-AIDS in the 80's forced treatment specialists to look at other alternatives. Harm reduction offers a pragmatic approach, however, it remains controversial. Drug Substitution Therapies for people using opioids have proven to be more effective with other non medical approaches such as contingency management, behavioral interventions and spiritual/religious enhancement. This paper reports the experience of Malaysia in providing Islamic religious input to drug treatment and rehabilitation programs in government and non government facilities.

Keywords: Drugs, addiction, treatment, rehabilitation, drug policy, Islam, harm reduction, spiritual therapy, religion.

Introduction:

Treating a chronic relapsing disease is not a simple undertaking. It involves the illness itself, behavioural and psychological components, belief system and spirituality[1].

Many treatment providers reported significant relapse rates among those undergoing treatment, especially for addiction to psychoactive substances. Illnesses like asthma and hypertension have 50-70% relapse rate, type I Diabetes has 30-50% relapse rate (for example, lack of diabetes control due to lack of compliance with lifestyle modification and proper therapy, leads to relapse of symptoms), whereas drug addiction has a relapse rate of 40-60%[2].

However, all of these illnesses, especially drug addiction, can be treated with a combination of treatment modalities and approaches[1,3]. There are basic principles to drug treatment that healthcare providers must understand in order to provide adequate treatment and rehabilitation.

One important fact is that no single treatment is appropriate for all individuals. Effective treatment attends to multiple needs of the individual, not just his or her drug use. In addition, treatment and service plans must be continuously assessed to ensure that the particular plan meets the person's changing needs[1].

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When a client is ready for treatment, remaining in treatment for an adequate period of time is critical for treatment effectiveness. Many believe that medical detoxification can help, however it is only the first stage of addiction treatment and by itself does little to change long term drug use[2]. Counseling and behavioral therapies are critical components of effective treatment for addiction[2,4].

Medication is an important element of treatment for many patients. Treatment should provide assessment for HIV, TB and other infectious diseases[5]. It is also important to know that recovery can be a lifelong process with relapses and require multiple treatments[1].

Drug Addiction in Malaysia:

The drug problem in Malaysia has been recognized since the pre-independence days. Most of the drug addicts used opiates, specifically opium that was brought in from China and the Golden Triangle area (Thailand, Myanmar and PR Laos). In the 1960's, influences from the 'hippie' Western culture reached the shores of Malaysia with marijuana and other psychedelic drugs primarily used by the American servicemen. The 70's saw the introduction of heroin and morphine into the country, and drug addiction reached an epidemic proportion[6]. In 1983, drugs and drug addiction was declared a national security problem.

A national drug treatment program was set up to provide mandatory treatment to drug dependents. Many Compulsory Centers for Drug Users (CCDUs) were set up to provide treatment, which was largely based on psychosocial and military model, where little focus was given to addiction treatment and treatment of other ailments[5]. It was not until the 1990's that drug addiction was accepted as a chronic relapsing disease. Drug addicts were accepted as patients that must be treated and alternative treatments were given, albeit they were still limited[6,7]. At that time supply and demand reduction approach was adopted as the national anti-drugs strategy. In the past decade, on the average, the Malaysian authorities arrested around thirty two thousand drug addicts in the country (about 55% - 60% were relapse cases) each year. This number has significantly decreased in these past years to about 22,811 cases in 2006, 14,489 in 2007, 11,194 in 2011, and 9,015 in 2012. Further reductions in the numbers of addicts identified every year demonstrate that the present strategies undertaken by the Malaysian government has taken effect [6,8].

Supply reduction:

Usually, the first approach to drug control is supply reduction. Simply put, the supply of the psychoactive substances to the affected population must be intercepted and terminated. Supply reduction focuses on law enforcement activities to suppress or disrupt production and distribution of drugs. Legal measures are used by all countries to control or eliminate the availability of illicit drugs. Some supply reduction strategies employed are[6,9]:

(i) Source-country control such as crop destruction and replacement,
(ii) Interdiction of supply into end countries,
(iii) Police enforcement of supply and possession, and
(iv) Regulatory policies to restrict prescription of opioids.

Efforts on reducing the supply of drugs into Malaysia were initiated long before the independence of the country. These efforts were directed to the control of the import, sales and use of opium. Several laws were enacted with punitive consequences and capital punishment for involvement in trafficking, using or abusing drugs. There are five main Acts that relate to drugs in Malaysia[6].

The first is the "Dangerous Drugs Act", 1952. It is the major legislation in relation to drug control in Malaysia. This Act is very extensive covering aspects of offences, procedures and evidence. It provides for mandatory death sentence for drug trafficking offences[6]. The second is the "Dangerous Drugs (Special Preventive Measures) Act", 1985 (The DDA-SPM) aimed at enhancing the effectiveness of countermeasures taken by the relevant authorities against those who are involved in drug trafficking. It empowers the government to detain anyone suspected of being a trafficker without having to bring the suspect to any court of law[6]. The third is the "Dangerous Drugs (Forfeiture of Property) Act", 1988 (The DDA-FoP) empowers the relevant authorities to trace, freeze and forfeit assets of convicted drug traffickers[6]. The forth is the "Poisons Act", 1952. This act controls the import and sale of "poisons" which refer to any substance specified in the Poisons List and includes any mixture, preparation, solution or natural substance containing such substance other than an exempted preparation or an article or preparation included for the time being in the Second Schedule of the Act. Many precursors to Amphetamine-Type-stimulants (ATS) are controlled by this Act[6]. The fifth Act is the "Drug Dependants (Treatment and Rehabilitation)" Act, 1983 that provides for both mandatory treatment and rehabilitation of any person who has been certified as drug dependent as well as for voluntary treatment and rehabilitation. The period of treatment and rehabilitation at a rehabilitation center is for two (2) years. This institutional treatment and rehabilitation is followed by after care for another two (2) years[6]. Finally there is the "AADK Act", 2004. This Act specifies the role of the "National Anti Drugs Agency (NADA)" in Malaysia. It empowers NADA for enforcement[6]. These laws were enacted from 1952 up to 2004 and several agencies, primarily the Royal Malaysian Police, were given the authority and mandate to implement these laws. It overlaps with the second strategy, which is demand reduction in the 80's to manage and reduce the drug problem in the country. To date, there are no major changes made to these laws, however, there have been evident shifts in the policy on treatment and rehabilitation of drug offenders.

Demand Reduction:

Prior to introducing medications for the treatment of drug use and abuse in Malaysia, the authorities placed significant amount of effort to reduce the demand towards these illicit substances[6].
Demand reduction refers to efforts aimed at reducing public desire for illegal and illicit drugs i.e. to reduce use and abuse of, and demand for, narcotic drugs and psychotropic substances[4,10].
Demand reduction seeks reduction of abuse directly through prevention and treatment.
First, demand reduction approach provides training and capacity building to prevent the onset of substance use and abuse.
Secondly, prevention is achieved by intervening at "critical decision points" in the lives of vulnerable populations to prevent both first use and further use. Thirdly, it provides effective abstinence-based treatment programs for drug dependents. Fourth, it broadens education and increases public awareness of the consequences of drug use/abuse.
Fifth, it builds a coalition to mobilize the local and the international community, and finally it promotes research on the effectiveness of these and other programs[4,9-12].
In general, the practice of demand reduction includes the school, workplace and the community. Prevention in school settings consists of introducing basic knowledge about, substance use, misuse,

life skills, and positive relationships. It also includes early intervention program, and preventive screening[13]. Prevention at the workplace basically includes programs such as drug-free workplace policy and guidelines, employee participation, voluntary and random testing for drugs, drug and addiction counseling, early intervention, treatment and rehabilitation. Continuous or random monitoring is often built into the human resource policy of the organization[6]. Community - based prevention programs are often the most difficult because they cover a plethora of settings, sub-cultures, ethnic back-grounds and other variables. What is often done is mobilizing community leaders and members to be aware of the drug situation, collaborative effort with enforcement agencies to reduce the demand for drugs, and a multitude of other drug free community efforts[6]. In Malaysia, several efforts are being undertaken by both the government and community to provide institutional based treatment. The government established 12 abstinence-based Cure and Care Clinics that provide voluntary drug treatment and 28 mandatory treatment centers. In addition, there are 30 treatment centers operated by NGOs and the private sector[14]. There are also community-based rehabilitation programs in 93 districts in the country that focus on individual, group and family counseling, health and welfare services, Family Association (FA), Narcotic Anonymous (NA), Alcoholic Anonymous (AA) meetings, job placement, religious programs and career development of the affected population. This includes 18 government halfway houses and service centers, 4 main drug related NGOs providing community-based outreach, relapse prevention and career development programs, support and assistance from more than 50 civil societies to aid in the reentry of recovering drug dependents into society[6,14]. The supply and demand reduction strategies have contributed significantly to the reduction in numbers of drug dependents arrested by the authorities.

Figure 1 shows that among the 60% heroin addicts in the country, the number detained every year has reduced from 23,723 in 1995 to 7,963 in 2006, just about one year before Drug Substitution Therapy (DST) became in full use in Malaysia[8].

Harm reduction:

The introduction of "Harm Reduction" in Malaysia is based on the realization of the limitations of supply and demand reduction approaches that were practiced between the 1970's and mid 2010's[15]. In short, harm reduction is "policies and programs which attempt primarily to reduce the adverse health, social and economic consequences of mood altering substances to individual drug users, their families and the communities" [16]. There are many approaches that can be included as harm reduction practices such as advocacy and 'capacity building' which are conducted through forums, seminars, media, training study tours, research and publication[16,17]. Most of the services provided under the umbrella of harm reduction are client-friendly. They use the multi-sectoral and community based approach to implement harm reduction. They establish Practical Guidelines and Standard Operating Procedures (SOPs) to guide implementtation on the ground. They emphasize 'evidence-based' program implementtation, effective monitoring and tracking programs[16]. There are several outcomes to harm reduction practices. These are reduction of substance use, not sharing needles specifically for the recipients of Needle Syringe Exchange Program (NSEP), greater concern towards one's health, decrease in illegal activities, longer retention in treatment programs, increased gainful employment and

increase in income. A study by Marsch found that there are significant reduction in the engagement in unlawful activities after six and 12 months of Opiate Substitution Therapy (OST)[18]. Figure 2 also shows marked improvement in reducing drug use, reduction in HIV risk behavior, and reduction in illegal activities from the time of admission to the OST program, six months after the program and 12 months after the program[19].

This means that once persons addicted to opiates took opiate substitution medication such as methadone, they will not look for drugs (heroin or morphine) to satisfy their cravings, thus will not engage in criminal activities in order for them to obtain these drugs. Harm reduction has helped to curtail the HIV-AIDS epidemic. Two categories of affected population were identified and focused upon, the sex workers and drug addicts[20]. For sex workers, the primary interventions are preventive education and condom distribution[16]. For drug addicts, Drug Substitution Therapy (DST) and Needle Syringe Exchange Programs (NSEP) were introduced[16,20-22]. These initiatives were introduced in Malaysia to curb the HIV epidemic and drug use[15].

Medical Treatment of Drug Addiction:

Harm reduction approaches such as OST and NSEP were not practiced in Malaysia during the supply-demand reduction era. However, on 13 Jan 2005, the Deputy Prime Minister announced in the National Council for the Eradication of Drugs (MTMD) meeting that the use of Methadone to treat drug dependents has been endorsed by the government[6].

Methadone Maintenance Therapy (MMT) programs were started in October 2005. For Phase 1, it was conducted in 8 hospitals, 2 health clinics, and 8 private clinics which involved 1,240 opiate dependents in 4 zones (north, south, east and west) of peninsular Malaysia. Soon to follow was the NSEP program. New HIV cases decreased since it was first detected in 1986 (Figure 2)[15].

Since then, more opiate users and addicts have been given the Methadone Maintenance Therapy. Other substitutes were also provided such is Buphrenorphine / Subutex and Subutex plus Naloxone (Suboxone). However, these are substitutes for opiates, whereas no substitution medications are available for other substances of abuse[20].

Many studies found that giving substitutes together with behavioural and psychosocial interventions yielded better results[22,23]. Harm reduction initiatives that are supported by counseling, especially motivational in nature, can mould a person's behavior change to a specific target[23]. A person on MMT, for example, given the proper counseling can direct his behavior to finding better jobs, engaging in community activities, taking care of his health, and becoming more aware of his medications as compared to a person that is on MMT alone. Counseling also includes spiritual input, i.e. encouraging the patient to perform his religious duties according to his faith[24,25]. What is important is that harm reduction initiatives can put a user on a platform where other services that enhance abstinence can be provided to him on the long run[15]. Religiosity seems to be one of the important factors that is present in recovering drug users who have maintained abstinence for a long time[25,26].

Islamic Religious input:

It is very clear that many religions of the world oppose the use of intoxicating substances[6,26]. Among those which clearly declared this opposition is Islam, which prohibits the use of drugs except those which are medically prescribed[6]. The Glorious Quran states

"*O you who believe! Liquor, gambling, idols and divining arrows are but*

abominations and Satanic devices. So turn wholly away from each of them that you may prosper. Satan desires only to create enmity and hatred between you by means of liquor and gambling and to keep you back from the remembrance of Allah and from Prayer. Will you then desist?" [28]. Prophet Muhammad ﷺ said, 'Every intoxicant is *Khamr* (alcohol) and all *Khamr* is *Haram* (unlawful or not permitted) ' [29]. The very argument that was used against such intoxicating substances is that all drugs enable people to escape from real life which would mean that they cannot serve Allah ﷻ. As such, people who use any type of non-medicinal substance will have to return to the path of Allah ﷻ [6].

Malaysia, being a Muslim majority country emphasized spiritual rehabilitation in most of its social, behavioral and correctional programs. This can be seen in all government programs and many others operated by NGOs and private institutions[5,30].

For government-based programs, most of the educators, teachers, counselors and therapists are being provided by the Department of Islamic Development, Malaysia (JAKIM) and the State Religious Council / Authorities.

Thus teachings of Islamic religion and good values are done by certified religious teachers. Also, drug rehabilitation programs obtain assistance from local religious leaders, *Ulama*, and *Imams* of the mosques to interact with residents in the center to prepare them to re-enter society. Drug users from other religious groups also receive inputs from their respective religious personnel.

At the triage department of government treatment centers, drug dependents are detained for 2 weeks following the court order for assessment, evaluation and relocation. Minimum religious inputs are provided there because of the short detainment period. Religious teachers from JAKIM encourage detainees to perform their 5 times obligatory daily prayers in their holding rooms.

Assessments are conducted by JAKIM officers on religious understanding, knowledge and practice starting from the *Shahadah and* covering all the basics of Islam.

Following up at the rehabilitation institution, there are assessments and evaluations done to match clients' needs and interests according to the requirements of the basic knowledge and values of Islam. Religious practices provided at these centers, among others are, mandatory prayers, reading the Qur'an, *sunnat* prayers, *zikr* (remembrance of Allah ﷻ) and learning of the *hadith*, celebrating Islamic events, religious classes, talks and a choice of careers pertaining to religious practice.

There are several spiritual enhance-ment programs at the government drug treatment institutions that include the followings:

(i) Spiritual and self-introspection.

(ii) Religious educational classes such as *tawhid* (unity of God), *fiqh* (Islamic jurisprudence), *akhlaq (*morals*)*, al-Qur'an, al-*Hadith*.

(iii) Learning the stories of Prophet Muhammad (ﷺ)., the *caliphs* and *sahabah*.

(iv) *Subh* (morning) and *Maghrib (*evening*)* religious programs and talks.

(iv) The religious test (*tasmi'*) in order to qualify for advancement to the next phase of treatment.

There are also annual Islamic programs and celebrations such as, celebration of the beginning and year end, *du'aa* (supplication) at the beginning of Islamic calendar year (1st *Muharram*), *Mawlid al Rasul* (the Prophet's birthday on 12 *Rabi'ul awwal*), *Isra'and Mi'raj* (ascension to heaven on 27 *Rajab*), *nisfu Sha'ban* (15 *Sha'ban*), *Ihya'* (celebrating) Ramadan (1-30 Ramadan), *nuzul al-Quran* (27 Ramadan), '*Eidul- Fitr* (1 *Shawwal*), and '*Eidul- Adha* (10 *Zulhijjah*). Celebrating these programs

are often done with family members and significant others in order to facilitate the family's involvement in the treatment program.

There are also special programs that are included in the Islamic activities calendar of the nation. These are Islamic current issues Forum (with local television stations, *Janazah* (funeral) course, *nashid* competition (religious songs), *hifz* (memorization) al-Quran program, *tilawah* (proper recitation) of al-Quran program, and Friends of the Mosque program (a joint program with JAKIM)[30].

Spiritual-based Relapse Prevention Program in Community Settings:

When recovering drug users leave the institutional drug treatment programs, most of them will still need guidance to be able to re-enter the society[1,9,11]. Many will use the government facilities, such as the drop-in and community service-centres (CCSC), community courses and other community-based programs to regain confidence. Here, there are a multitude of programs that they can follow, one of which is the religious program as illustrated in Table 1-6.

Most of the community-based programs also contain the following:

(i) *Taqwa* (righteousness) enhancement program.
(ii) *Salat* program.
(iii)Capacity- building and enhancement.
(iv) Spiritual and religious recovery mentoring.
(v) Visits of the community religious leaders.
(vi) Imam and *mu'adhin* workshop.
(vii) *Dawah* methodology courses. These are often done with collaboration of the local religious heads in the community[30].

What is the outcome of these inputs? National Anti - Drug Agency (NADA)[30], in its implementation documents stated that the desired outcomes would be clients that perform the religious practices in their everyday life, clients that practice Islam as a way of life. Religion can steer clients away from negative life influences and decisions. There are some improvements of the clients' physical, social and spiritual quality of life. The question is how to measure these outcomes in a short time frame.

A study at 10 community-based Cure and Care Service Center (CCSC) in 2012 showed that there are positive changes perceived by the clients after they undergo at least 12 months of religious programs as part of their rehabilitation[23] (Table 2).

In this study, model A is the CCSC program operated by government officers (NADA), CCSC model B is operated together by government (NADA) and NGOs, and Model C program is operated by NGOs. Respondents were interviewed based on a dichotomous rating of 'Yes' and 'No' to the items listed in Table 2. They were asked to recall back to the days when they were using drugs, and compare to the present situation. Almost in all models, there have been positive changes on many of the indicators. Specifically, religious indicators such as "perform prayers regularly" and "practice religious teachings" showed the largest and more significant perceived change before they enter the rehabilitation program and after the program, respectively from 36% to 93% and 29% to 88%. Most of the religious programs are being conducted by officers from the Department of Islamic Development, Malaysia (JAKIM) and these positive perceptions among residents can be attributed to its positive outcomes.

Conclusions:

The inclusion of religion and spirituality into drug treatment has been found to

have a positive effect onto the lives of the recovering drug addicts. There has been an increase in church attendance that was associated with reduction in cocaine use[5], and regular performance of one's religious obligations[22].

Such a positive effect, though not widespread, has helped to improve the quality of life of recovering drug addicts[24-26]. There are studies that showed good outcomes to the religious programs conducted in Malaysia[21-23], however there are also many studies that showed little change over a longer period of time[5,11]. These studies also pointed out those religious inputs must be conducted together with other evidence-based drug treatment modalities. When the religious program is conducted in isolation it was shown to be of little effect[1,11] as compared to when it is conducted along with other programs such as detoxification, behavioral interventions, therapeutic communities, and later on MMT and other OSTs.. From these studies and a multitude of unrecorded experiences of conducting religious programs, there are lessons that can be learnt from Malaysia.

Since many drug users/addicts have limited knowledge of religion, and are much less practicing it, many treatment experts believe that religion is quite 'alien' to the lifestyle of a drug addict. Relearning religion and religious values is imperative and it has to be done at a slow pace[22].

Treatment providers and specialists also commented that rejection, lack of commitment, non-adherence to programs and negative defense mechanisms are common especially among the hardcore addicts. Acceptance is much higher with younger clients and those who do not experience severe dependency. This would be a good group to start a religious program[22, 25].

Introduction of religious teachings should be at the level suitable to the subjects' needs and preparedness. Education should start at the appropriate level rather than assuming that they know everything. Inputs that are too demanding or complex would only be met with rejection[22,23].

Thus teaching religion, its values and practice without proper assessment of the client's needs is counterproductive. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) can be used as a guide for placement of clients into specific programs[17]. Peer-educators can be used to guide clients into the programs, and at the same time to avoid coercion[23]. Also the use of motivation-enhancement techniques to move clients up the ladder of religious values and practice are more effective than following a structured and fixed program. Guidance and counseling is necessary to motivate clients towards religion, its values and practices. Clients who reject religious teachings can and will influence others to reject the program in many ways.

There must be allocations for group discussion sessions on the recovering addicts' experience in learning/ relearning religion, what are the ups and downs[23]. Encourage clients to choose what they want to learn with a given menu. Assess their achievements and give reports /encouragement.

Finally, healthcare providers must adhere to the Principles of Drug Addiction Treatment (PODAT)[1]. If religious/ spiritual therapy is to be used, medical and behavioral therapy must be integrated to provide a holistic drug treatment strategy.

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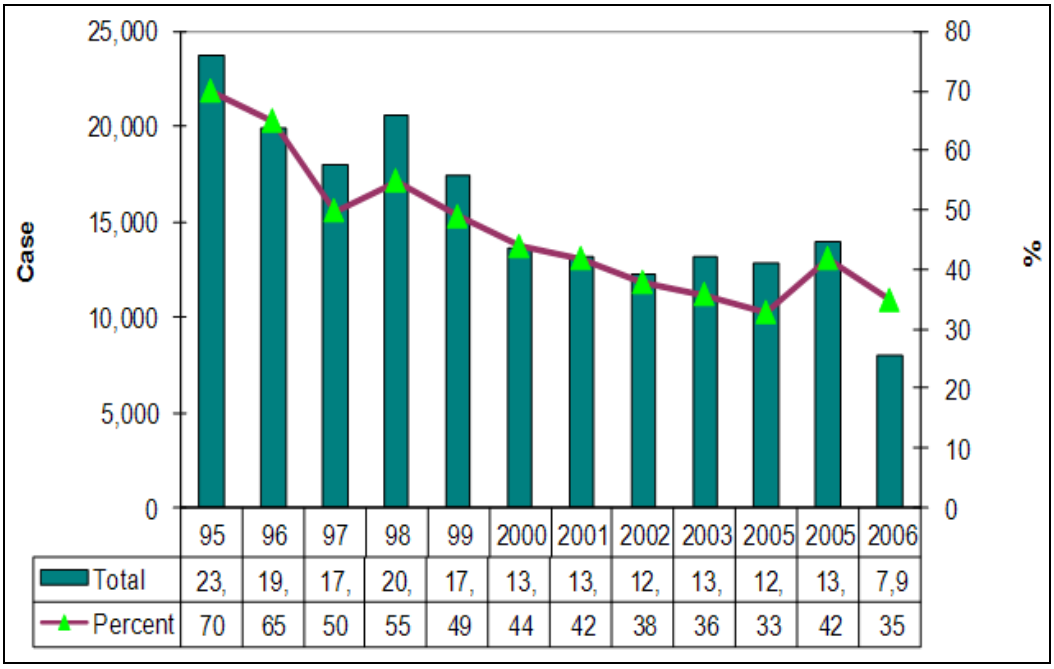
Figure 1: Number of heroin addicts arrested by the authorities from 1995 – 2006[8]



Total number of heroin addicts arrested by the authorities

Per Cent of heroin addicts arrested to the total number of drug addict arrested each year

(Permission to use obtained from National Anti-Drugs Agency, Malaysia, 2014)

Figure 2: Changing percentages of HIV cases due to intravenous drug use (IDU) and those due to sexual encounters from 1990 to 2010

(Permission to use obtained from Ministry of Health, Malaysia, 2014).

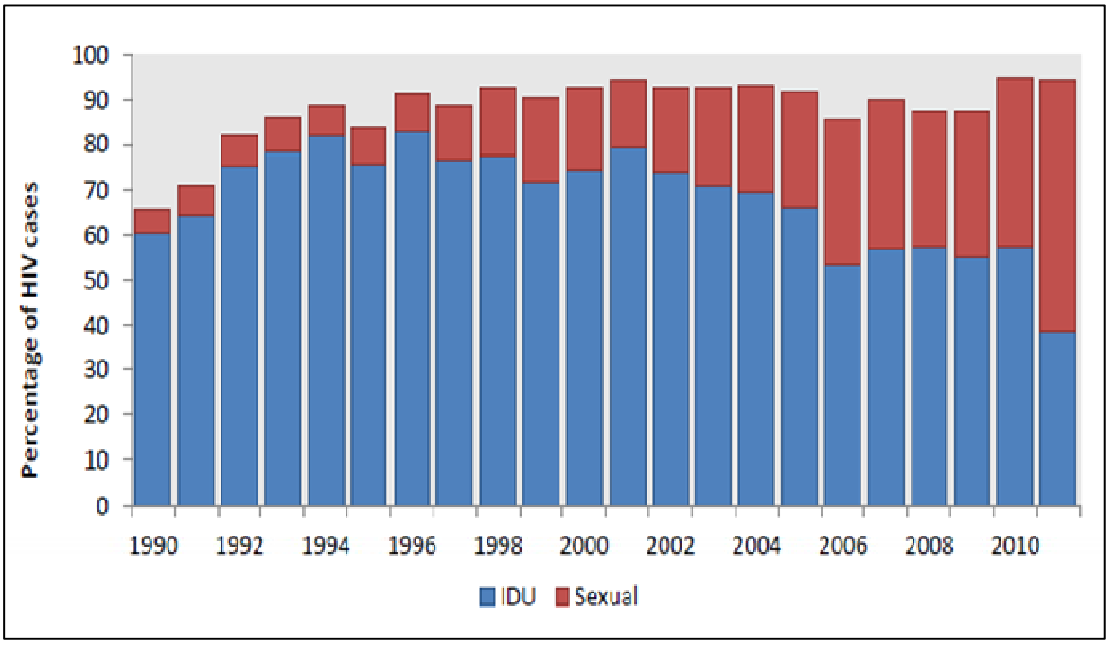


Table 1: Some of the Community-Based Islamic Programs and Expected Outcomes

No.	Program/activities	Objective
1	*Halaqah*	Provide continuous religious classes to recovering drug addicts and their families, besides group meetings to enhance recovery
2	Islamic art and culture	Provide Islamic entertainment, arts and culture for recovering drug addicts
3	*Ibadat* camp	To provide an intensive program to study *fard 'Ain and fard Kifayah* to recovering drug addicts
4	Mosque as foster parents	To aid recovering drug addicts and their families in the recovery process by using the spiritual approach
5	Friends of the mosque	To encourage recovering drug addicts to be close to the mosque institution. It can act as a temporary shelter for them when they re enter the community
6	Volunteer work in the community mosque	To encourage recovering drug addicts to contribute back to the society besides preparing them to be reintegrated back into the community
7	Outreach to other drug addicts	Outreach work to recovering or drug addicts and families in the community

Table 2: Measuring outcomes at 10 Cure and Care Community Centers (CCSCs).

Pre-post Interview at CCSC Indicators of Change	**Model A Pre**	**Post**	**Model B Pre**	**Post**	**Model C Pre**	**Post**
Maintain good relations with parents	95	121	76	92	17	22
	63.1%	**84.6%**	55.9%	70.2%	50.0%	64.7%
Maintain good relations with siblings & other family member	100	2130	87	108	19	28
	48.0%	**87.2%**	64.0%	79.4%	55.9%	82.4%
Involved in societal Voluntary program	80	131	65	104	15	25
	53.7%	**87.3%**	48.1%	76.5%	44.1%	73.5%
Perform prayers	55	140	69	121	15	28

Pre-post Interview at CCSC Indicators of Change	Model A Pre	Post	Model B Pre	Post	Model C Pre	Post
regularly	**36.9%**	**93.3%**	51.1%	89.6%	44.1%	82.4%
Practice religious teachings	57	118	45	88	10	30
	38.0%	78.7%	33.3%	65.2%	**29.4%**	**88.2%**
Learn to increase knowledge	47	81	38	68	5	18
	31.3%	54.0%	27.9%	50.0%	**14.7%**	**54.5%**

ISLAMIC PSYCHO-SPIRITUAL THERAPY (PST): PANACEA FOR THE DRUG DEPENDENT

*Mohamed Hatta Shaharom**

Abstract:

Islamic Psycho-spiritual Therapy (PST) has its roots well embedded in the spiritual foundation of the Qur'an and the *Sunnah* of the Prophet Muhammad (ﷺ). Islamic PST is the embodiment of everything that is permissible and potentially possible in the methodologies of the spiritual treatment of the believer, within the confines of the *Shari`ah* (Divine Law). The upholding of the principle of *tawhid* (the Oneness of Allah (ﷻ) is of prime importance in this therapy. What is basic in Islamic PST is that it is a healing technique that transfers the individual from the realm of ill health to the realm of wellbeing in a manner that is Godly (*Rabbani*). It also involves the assessment of the patient's religiosity. In the process, the individual is brought closer to Allah ﷻ. In the treatment of many who are dependent on alcohol and psychoactive substances, Islamic PST has been proven to be effective.

Keywords: Allah (ﷻ), Muhammad (ﷺ), Islam, Muslim, , psycho-spiritual, therapy, religiosity, meditation, , addiction.

Introduction

From the 1950s to the 1990s, the total number of books, chapters and journal articles that included topics on psychotherapy, religiosity and religious belief in their titles and abstracts has risen from 86 to 330, totaling 774. Of these, five controlled studies examined how religion could be used in psychotherapy to treat clients[1]. The Muslim *Ummah* (nation) of today is blessed with the presence of Muslim psychotherapists who strive to be *Shari`ah* (Divine Law)-compliant in their practice. Islamic Psycho-spiritual Therapy (PST) must first of all be free of un-Islamic and atheistic influences.

As a methodology, Islamic PST should be able to incorporate the different theories of psychotherapies that are not inherently anti-religion and anti-spirituality, Islamizing them in the process. As the *Ummah's* need for Islamic PST increases, the training of therapists and counselors in Islamic PST must be enhanced.

In its contemporary forms, Islamic PST has its roots well embedded in the spiritual foundation of the Glorious Qur'an and the *Sunnah* of the Prophet Muhammad (ﷺ).

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Islamic PST is the embodiment of everything that is permissible and potentially possible in the methodologies of the spiritual treatment of the believer.

While approaches of Islamic PST can be varied, they must always be within the confines of the *Shari`ah*, the sacred law of Islam. The upholding of the principle of *tawhid* is of prime importance in this therapy, like in any area of the lives of the Muslim client (patient) and therapist.

The five daily compulsory prayers prescribed by Islam are adequate spiritual enforcers for the practicing believer. It is a constant psycho-spiritual reminder, a light physical exercise and a social strengthening effort, all rolled into one. The focusing on and mentioning of the name of Allah and reciting His beautiful names are among the most effective of meditation techniques to countless Muslims throughout the ages. When the need and situation arises, Islamic PST needs to be coupled with pharmacotherapy.

What is basic in Islamic PST is that it is a healing technique that transfers the individual from the realm of ill health to the realm of wellbeing in a manner that is Godly (*Rabbani*). In the process, the individual is brought closer to Allah.

This dual function is unique to God-consciousness in Islam and Islamic PST. Thus, while it is health giving to the believer, Islamic PST enhances the believer's state of Godliness. It should be stressed that Islamic PST is part of a therapeutic process that is based on a holistic paradigm. While the therapist and the client dwell into the psychological and the spiritual domains of life, the physical and the social domains must not be neglected. In brief, a four-domain (bio-physical, psychological, social and spiritual) assessment of the human being is of great importance before treatment commences. It is only through this approach that one can identify the diseased or imbalanced domains[2]. Islamic ethics in PST must be strictly observed, just as in other forms of therapies instituted by any Muslim therapist. Islamic ethics in therapies include universal ethics of good practice. One significant difference between Islamic and non-Islamic ethics is the sitting arrangement of the therapist and his patient. When it involves a therapist and a client of the opposite sex, therapy is best done in a room with a glass window or a glass door so both can be seen from the outside. When there is a chaperone, this requirement does not apply.

Measurement of Religiosity:

Since Islam is a structured religion, it is recommended that the status of the client's religiosity at the commencement and the termination of therapy be recorded. The different levels of religiosity can be measured by a well-structured Islamic religiosity scale. An example is the author's Hatta Islamic Religiosity Scale (HIRS) which measures the religiosity of the client undergoing therapy.

This involves the scoring of the client's:

- Basic Islamic knowledge, and
- Practice of basic Islamic rituals.

Guided by the different scores of the scale, the therapist is able to advise the client on the progress of the therapy and its religio-spiritual impact.

During this process of guidance and advice, the therapist must not impose his own high standards of Islamic knowledge and practice. He must not be seen as judgmental even though the client is a sinner according to basic Islamic standards and a weakling as far as Islamic commitments are concerned. However, it must be noted that the HIRS does not attempt to measure the faith (*iman*) of the

client or any Muslim, for the faith of any Muslim or believer is only known to Allah ﷻ. It is immeasurable by any human inventory or questionnaire. On the other hand the manifestations of an individual's faith are evident in his daily commitments and undertakings[3].

Therapist and Client: Requirements

a. The Therapist:

Since Islamic PST is essentially a psycho-religious therapy, the therapist must be a practicing Muslim. To him, observing the basic tenets of Islam is not a problem but a pleasure, for he yearns for the pleasure of Allah ﷻ through his attitudes and deeds. He is known as an ethical practitioner who inspires his clients in things spiritual and moral. He has his clients' trust as he guides them with hope and faith on the road towards health. Therapy is a humbling experience for both therapist and client, regardless of whether it ends in success or failure. His client's experiences before and during therapy remind the therapist that life is always full of challenges that can devastate or elevate the morale of the individual. This humility guards the successful healer from the onslaught of ostentation and boastful pride. He constantly reminds himself that in reality, healing does not come from him but from Allah (ﷻ) the Almighty, the Ultimate Healer, according to the following Qur'anic verse:
"*And when I fall ill, He restores me to health*"[4].

b. The Client:

Since Islamic PST involves religious principles, the client undergoing it has to be a Muslim. He must be willing to be guided psycho-spiritually by the therapist and let the blessings of Allah be showered upon them. He is the one who is in need of help. The therapist's appreciation of the client's reliance on him must be realized through an ethical mutual emotional-spiritual relationship that will primarily benefit the client. If the client is a non-Muslim, the Muslim therapist can still discuss religio-spiritual issues that can help the client's progress towards recovery as long as the therapist is not seen as imposing Islamic principles on the client. Consent from the client on this technique must be obtained at the outset. The therapist must not be seen as taking advantage of the therapy to proselytize.

Therapist and Client: Differences:

Being co-religionists, the main similarity that exists between the therapist and the client is their religion. In fact, it functions as the bulwark against further deterioration of the client's health while it acts as a savior for the client's waning spirit, troubled emotion and challenged cognition.
Among the characteristics of an efficient therapist is an unwavering belief in Allah(ﷻ), good Islamic knowledge and practice, and praiseworthy character traits. In contrast, the client may be well equipped with or deficient in Islamic knowledge and practice. His character can be commendable or otherwise. In brief, it is helpful for the client to feel that the therapist is better than him in terms of Islamic knowledge and practice. Otherwise, he may lack the confidence in his therapist. And this will disrupt the smooth progress of the therapy.

Methods and Contents:

As the name implies, Islamic PST involves the client's cognition and emotion (both

are compositions of human psychology) and his spiritual state.

Methods and approaches may vary from one therapist to another and from one school of PST to another. But the principles and contents of Islamic PST do not differ, i.e. they should not conflict with Islamic principles of human psychology and spirituality. Forbidden theories of psychology, like the many aspects of Freudian sexual interpretations of human developmental theory, are excluded. The therapist must be aware of anti-religious trends in psychological theories and therapies that, for instance, reduce man to the level of the mice in the Skinner box or the dog of Pavlov. These non-Islamic schools of psychology oppose the attempt to find the Godliness in man's life and efforts.

Islamic PST maintains that man is the most supreme of the creatures of Allah. Man enslaves himself only to Allah (ﷻ). Islamic PST is a means to aid the wayward slave of Allah. If he deviates from the path of Allah (ﷻ) and falls into the abyss of error or even disbelief, Islamic PST offers the helping hand. Islamic PST elevates him to his former station of *fitrah*, the original unblemished state of Godliness of every human being before he becomes corrupted by his own worldly desires and satanic influences.

Daily Prayers:

In many structured religious traditions, there are prescribed daily prayers to be performed by the devout believer. The belief in the hereafter provides an unending hope for salvation. In the hereafter is found the eternal reward or punishment of all strivings during this transitory earthly life. The five daily compulsory prayers prescribed by Islam are adequate spiritual enforcers for the practicing believer. It is a constant psycho-spiritual reminder, a light physical exercise and a social strengthening effort, all rolled into one. It is best when done congregationally at any clean place, outdoors or indoors, and in mosques or in family homes. When any of the daily prayers is performed individually, the spiritual rewards and blessings are inferior as compared to the congregational prayer. Of course, performing the individual prayer is much better than neglecting it totally.

Apart from these compulsory prayers, there are supererogatory prayers for special occasions that would cleanse and strengthen the soul of the believer.

They draw him closer to Allah. These include prayers in times of need and hardship and during moments of thanksgiving and joy. Practicing the compulsory five daily prayers is extremely important during the duration of Islamic PST or outside that duration of therapy.

If the client is not used to perform all the five daily prayers, he must be encouraged to perform at least one to four of them. It is commendable for the client to perform suitable supererogatory prayers to buttress his increasing spiritual strength. It is also appropriate for the therapist to become the *imam* (prayer leader) of the client should they perform the congregational prayer together.

Meditation:

The essence of meditation is the focusing of one's attention on one thing at a time. Different religious traditions vary in their approaches to meditation. Often the meditator repeats, either aloud or silently, a syllable, word, or group of words. In the Hindu tradition, the Sanskrit term for this

kind of meditation is called mantra. To anchor the attention, one gazes at a fixed object such as a flame or flower. Others find focusing on the rising and falling of their own breaths as a convenient and relaxing point of focus.

It is the nature of the mind to go astray and not stay concentrated. Myriads of thoughts easily appear and seemingly interfere with the meditation. By repeating this one moment of awareness (noticing the thought and then refocusing the attention), gradually the meditator will realize that:

- It is impossible to worry, fear, or hate when the mind is thinking about something other than the object of these emotions;
- The diverse contents of the mind can really fit into a few simple categories, such as grudging thoughts, fearful thoughts; etc.
- We act in certain ways due to thoughts that have become habitual thought patterns and perception;
- Thought and emotion are not permanent since they pass into and out of our body and mind; and
- Life will be lived to its fullest with equanimity and level-headedness when we are awake to what is happening right now[5].

c. Invocations and Remembrance:

In Islam, the focusing on and mentioning of the name of Allah (the name of the essence of God) and reciting His beautiful names [*al-asma' al-husna* (Beautiful Names or Attributes)] are among the most effective of meditation techniques to countless Muslims throughout the ages. This act of remembrance of Allah (ﷻ) (*dhikr* Allah) can be practiced anywhere and at any time. It has brought solace to many a troubled soul and offered hope to those who had been momentarily displaced from the sphere of hopeful determination due to their forgetfulness of Allah (ﷻ) in the face of intense personal suffering[6].

In this spirit, even beyond mandatory religious rituals, seemingly mundane activities like carrying out a respectable job or singing in front of an audience are considered Godly. This is as long as they are executed out of sincerity to Allah (ﷻ) and the carrying out of these acts is in accordance with Islam. The therapist must be aware that psychotherapy comes in different forms in Islam, and among them are music and singing therapies. As in other life activities, there must be no free mixing of the sexes. Allah's Beautiful Names (Attributes) can be memorized and recited at any time. The therapist should be able to choose for the client the appropriate name(s) to be memorized and recited as part of the therapeutic process. For instance, the name *al-Razzaq* (the Provider) is appropriate for a client who experiences mild anxiety and/or mild depression while he is engrossed with unnecessary worries about his financial needs. Among the assortment of collections of prayers from the Glorious Qur'an and the supplications of the Prophet Muhammad (ﷺ), selections from the following scholar-compilers would be directly relevant for clients undergoing Islamic PST:

- *Al-adhkar* of al-Nawawi[7], and
- *Al-ma'thurat* of al-Banna[8].

Qur'anic Healing:

Among the many Qur'anic verses that are relevant to the healing process are:

"*Those who believe (in the Qur'an), those who follow the Jewish scriptures, and the Sabeans and the Christians, whoever believes in Allah and the Last Day and work righteously, on them shall be no fear, nor shall they grieve*"[9].

"*When My slaves ask you concerning Me, I am indeed close to them, I respond to the prayer of every suppliant when he calls on Me; let them also listen to My call and believe in Me, that they may walk in the right way*"[10].

The client is also made aware of the fate that befalls unfortunate souls who deny Allah's (ﷻ) truth. In reality, the Glorious Qur'an ascertains that they have a disease in their hearts. This is essentially a spiritual illness that must be prevented from afflicting any believer.

"*In their hearts is a disease and Allah increases their disease, and grievous suffering awaits them because they are false (to themselves)*"[11].

Islamic PST facilitates the introspection process on the part of the client. If he discovers that he is suffering from a spiritual disease, the therapist would be able to help him get through his ordeal and get rid of the illness. Even if he is afflicted by a mild spiritual discomfort, it would be helpful if he/she strives to prevent the occurrence of the illness.

Sickness as Expiation of Sins:

Islam has a unique perspective regarding physical and mental illnesses. While seeking treatment is a commendable effort, the sick person must understand and accept the fact that the expiation of some sins takes place during illnesses as clearly described in the following *Hadith*:

Abu Sa'id al-khudari and Abu Huraira narrated that the Prophet (ﷺ) said:"No fatigue, nor disease, nor sorrow, nor sadness, nor hurt, nor distress befalls a Muslim, even if it were the prick he receives from a thorn, but that Allah expiates some of his sins for that[12]".

Psychological Disorders:

Relevant prayers must be recited by the patient suffering from a psychological or psychiatric disorder. If the client is mentally unfit to pray for himself, his next-of-kin (e.g. parent or sibling) and the community should pray (supplicate) for him/her. Among the common psychiatric disorders (DSM-IV-TR criteria)[13] that are known to afflict patients are:

- Anxiety disorders.
- Depression.
- Mania.
- Schizophrenia.
- Substance dependence and abuse.

Adjunct Therapy:

There would be situations when Islamic PST needs to be coupled with pharmaco-therapy. Islam, viewing the patient as a whole individual, does not negate the role of other forms of permissible therapy beyond the psycho-spiritual. Adjunct therapy that is coupled with Islamic PST is also permissible in Islam for as long as it does not contradict the *Shari`ah*.

Addictive Behaviour:

Terms related to drug and alcohol addiction are dependence and misuse. Addictive behavior related to the misuse of psychoactive substances is associated with excessive behavioral patterns that are detrimental to the individual's health[14]. For more than a decade, convincing studies have shown the relationship between environmental stimuli and the craving for the drug among drug users as compared to non-users. Neurophysiological responses included elevated heart rate, strong craving, and Positron Emission Transaxial Tomography (PET) scans revealing increased activity in the brain's limbic region. Thus psychological experiences can be associated with brain regions identified by brain imaging techniques[15].

Comorbidity:

It is common for drug users to have multiple medical problems. For instance, psychiatric comorbidities with attendant dependency are not infrequent. Coupled with this challenge, the demanding or help-rejecting nature of the drug dependent populations may drain staff of clinical emergency departments[16].

Non-hospital therapeutic groups whose interest and cooperation can complement the services of conventional Western hospital care are welcome to serve and alleviate the stress on medical services.

Looking back at the holistic model of managing the drug abuser, the psycho-social aspect must not be overlooked when the psychospiritual domain is looked into. Punishment (which is the psychosocial aspect of the outcome) must be meted out to abusers who break the law. But efforts to help them overcome their addiction must not be neglected.

Concluding Remarks:

For Muslim drug abusers and addicts, the psycho-spiritual method has been shown to be helpful in their efforts to overcome the problem while they return to the path of a practising Muslim. Whether it is in South Africa[17], Malaysia[18] or Indonesia[19] psycho-spiritual approaches have been successful.

However two main issues need further attention:

1. Empirical studies on the methodologies and outcomes must be enhanced to ensure the approaches meet basic international standards of therapy and research.
2. It must always be ascertained that therapies that employ *sufi dhikr* and other spiritual techniques must abide with Islamic *Shari`ah* principles.

Prayers are not only confined to Islam and its therapeutic domain. Since time immemorial, prayers have been found to be part of the treatment armamentarium of many a civilization and culture. By the end of the 20th Common Era century, Western researchers have noted the incompleteness of medical therapy without the prescription of prayers[20].

The Muslim client has every opportunity to benefit from Islamic PST. For the non-Muslim believers of God, they can also gain from a PST that is managed by a well-trained Muslim therapist. Meditation and prayers are necessary in the management of the cacophony of post-modern social disorder. They are able to help us retain our sanity in facing the challenges of life. Without them, we stand to lose our psycho-spiritual bearing.

Islamic PST has its relevance in treating those who are dependents on and involved in the misuse of psychoactive substances.

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Publisher:
Jordan Society for Islamic Medical Sciences,
Amman-Jordan
With special permit from:

Federation of Islamic Medical Associations (FIMA).