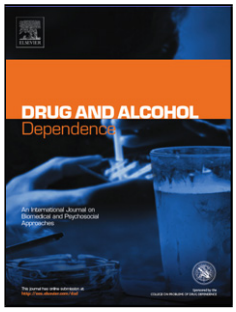

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Does the biopsychosocial-spiritual model of addiction apply in an Islamic context?

A qualitative study of Jordanian addicts in treatment

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Highlights

- Addiction had health, social and spiritual consequences.
- Participants described loss of employment, crime and social isolation.
- The power of addictive substances overpowered religious practice.
- The biopsychosocial-spiritual addiction model fitted well in the Islamic context.

Abstract

Background: There is a dearth of research in the published literature on substance use and addiction in the Middle East and Islamic countries. This study was the first to explore whether the biopsychosocial-spiritual model of addiction was relevant to an addicted treatment population in Jordan, an Islamic country. **Methods:** A qualitative study design

using semi-structured, face-to-face interviews were conducted with a sample of 25 males in addiction treatment. The sample was drawn from a cohort of in-patients at a treatment centre in Amman, Jordan who had already participated in a quantitative survey. A purposive sample was selected to ensure the inclusion of a range of characteristics that might affect their experience of developing addiction and its consequences, i.e., age, marital status and educational level. Interviews were transcribed and thematic analysis conducted using verbatim quotes to illustrate themes. Themes were mapped onto the biopsychosocial-spiritual model of addiction. **Results:** This study found addiction was associated with a range of health (physical and psychological), social and spiritual factors. Unpleasant physical withdrawal effects, psychological symptoms, such as anxiety and suicide attempts, were experienced. There was breakdown in marital and family relations, loss of employment, involvement in crime and neglect of religious practices, resulting in social isolation. **Conclusion:** This study found that, despite some differences in emphasis, the biopsychosocial, spiritual model of addiction fit wel,l particularly given the relative importance of religion in Islamic culture. Spirituality was not explored and further study of spirituality versus religious practice in this culture is recommended.

KEYWORDS: Islam, biopsychosocial model, spiritual, addiction

1 INTRODUCTION

1.1 Substance use, Islam and the Jordanian context

Substance use and addiction is a worldwide phenomenon. In some countries and societies, the establishment decides which substances are acceptable. Society is thus a key factor in determining whether or not a substance is considered harmful (Wanigaratne et al. 2007). The definitions of addiction and diagnostic criteria applied in Western countries may be problematic when applied internationally, but at the same time it is recognized that problematic substance use and addiction is observed across the world, in people from different cultural and religious backgrounds (Nasir and Abul-Haq, 2008). Although Islamic countries are associated with less substance use as the Islamic religion is considered

protective (UNODC, 2011), there is still problematic substance use (Sloan, 2014; Adib, 2014). Good epidemiological data from this region is rare. A global review of the prevalence of injecting drug use found little data from the Middle Eastern Countries (Mathers et al, 2008). Some prevalence data on alcohol is available via the World Health Organisation (WHO) listing the rate of problematic alcohol use in the adult population in Jordan to be higher than other Eastern European Regions (0.4% compared to 0.3%) (WHO, 2015). Data on drug seizures found Jordan recorded an increase in amphetamine seizures in 2008-2009 and ranked fifth in the world after Saudi Arabia, USA, China and Mexico. Approximately 29 million captagon (amphetamine and theophylline) tablets were seized in 2009 (USDS, 2011).

Jordan is a small country in the Eastern Mediterranean region (population: 7.6 million). Unlike other countries in the region it has no oil and is classified by the World Bank as a lower middle income country. However, it is a relatively well educated society with a literacy rate of 92% (DOS, 2011). In Jordan, as in other Islamic countries, drug and alcohol use is forbidden. No distinction is made between alcohol and psychoactive substance as both are considered 'intoxicants'. Ali (2014) explored Islam's perspective of drug addiction, noting shame and guilt as key factors. The Quran states in several verses that intoxicants are forbidden. In Surah Baqarah, for example: "*They ask you regarding wine and gambling. Say, in both of them is major sin, and there is some benefit for men, but the sin of them is far greater than benefit*".

The common psychoactive substances used recreationally in Jordan are alcohol, cannabis, opiates, stimulants, benzodiazepines and other sedatives and analgesics (Weiss, 1999) including both legal and illegal substances.

1.2 Models of addiction

The concept and descriptions of addiction, particularly alcoholism, have evolved in western medical literature since early writings by Trotter (1804), cited by Vale and Edwards (2011).

The "biopsychosocial disease model" emerged in America in the 1970s and brought the three domains of biological, social and psychological together (Engel, 1977; Schwartz, 1982). This model is a conceptual framework that implicates numerous biological,

psychological and social factors as playing a part in the development of addiction. Consequently, it is considered that all three domains must be considered in treatment. They are "*all more or less equally relevant, in all cases, at all times*" (Ghaemi, 2009). An appreciation of the model has been stated "*We all love the biopsychosocial model in psychiatry because it gives us a warm inclusive glow and the knowledge that almost every aspect of practice can be incorporated within it*" (Tyrer, 2009).

In addition, evidence of a spiritual/religious dimension as an important protective factor in the development of and recovery from addiction has resulted in a spiritual dimension being added to the biopsychosocial model (Miller, 1998; Morgan, 1999; West, 2006). Religion is an important aspect of Islamic societies but it is not known whether this conceptualisation of addiction fits with Islamic culture. No previous study of the biopsychosocial-spiritual model of addiction in an Islamic context was identified in the literature.

The aim of this study was to explore the characteristics of addicts in treatment in Jordan, their addiction journey and its consequences and to consider whether the biopsychosocial-spiritual model of addiction applies to an Islamic context.

2 METHOD

2.1 Study sample

The population selected for the study was a clinical population receiving treatment in Amman, Jordan. The sampling frame was a cohort of those attending a treatment centre in Amman, Jordan between 2008 and 2009. A purposive sample was drawn from this cohort of 250 men who had already participated in a quantitative survey (Al Ghaferi, 2014). A range of characteristics that might affect their experience of addiction and its consequences, i.e., age, marital status and educational level were included. The treatment centre only treated males.

The first contact with potential participants was by their physician who gave them an information sheet. Written consent was sought by their physician or the researcher.

2.2. Data collection

A topic guide (semi-structured interview) was developed which covered a participant's experience of developing addiction and subsequently seeking treatment. The topic guide was framed within the biopsychosocial-spiritual model of addiction and covered development of dependence and consequences of substance use. The first five interviews were considered a pilot, but no changes were required so these were included in the analysis.

The interviews were all conducted in Arabic, by the lead author (HA). Data collection continued until data saturation had been achieved (i.e., no new themes arose). Interviews were conducted from July, 2008 to August, 2009.

2.3 Data management and analysis

Interviews were transcribed in Arabic and checked for accuracy. Transcriptions were translated into English for analysis. For a sample of five transcripts an Arabic speaking PhD student compared the translated English scripts with the original Arabic ones. Furthermore, back translation from English to Arabic language was performed by an independent translator and checked by an Arabic speaking PhD student, to ensure the quality of the translation. Data was analysed in NVIVO using a thematic approach.

3 RESULTS

3.1 Sample

Data saturation was achieved after interviewing twenty five participants. Their average age was 35.5 years and they were all Muslims. They had drug use histories ranging from 5 to 25 years. Further demographic characteristics are summarised in table 1.

3.2 Thematic framework

A number of themes mirrored the natural history of substance use. Participants naturally adopted a historic account of their substance use. Consequently, emerging themes are presented in a way that gives a narrative account of the journey from initial substance use to dependence and its consequences in different spheres of an individual's life. The following high level thematic framework emerged:

- Initiation of substance use

- Escalation of use: development of dependence
- Health effects of addiction
- Social aspects of addiction
- Spiritual consequences of addiction
- Seeking treatment.

This paper presents findings on escalation of use and the consequences of addiction. Initiation and treatment seeking were also described in detail but are not reported here.

3.4 Escalation of use

Some participants described vividly how their substance use escalated to problematic use and dependence. Whilst these descriptions fit universal patterns and what is known about addiction, they paint a unique picture of use in the context of Jordan. The following is an example of escalation of drinking where the individual would take any form of alcohol, including surgical spirits (ethanol), to get the desired effect:

> *"I started with 'light' stuff like beer and in the beginning ….. then all this stuff would not touch me anymore, so spirit was the 'heavy' stuff I used." (2)*

One person described how he sought help from a friend at a time of emotional difficulty which led to further substance use:

> *"At first I was religious and committed, but because of family problems, I went to one of my friends and started to drink with him once or twice per week. It had a normal effect, so I changed to beer, then I mix beer with whiskey although my friend had stopped taking alcohol…. during this period I started using marijuana, and because of alcoholism, I resigned from my job in the Ministry of Youth, and worked as a bus driver. I started using kemadrin, rivotril and marijuana." (218)*

3.4 Health effects of addiction

Participants' substance use affected individual health both physically and psychologically.

3.4.1 Physical dependence. The interviewees described withdrawal symptoms and sleep disturbances quite clearly. Physical consequences such as injuries were also reported. One subject gave a classical description of withdrawal symptoms with Delirium Tremens (DTs):

> *"my hands had tremors... painful ones that would hurt my head too. Yes, tremors, and my eyesight became weak and so did my hearing…. I could not sleep at all and the tremors were so bad I couldn't take it or stand anybody around me. …. Whatever I ate I would end up throwing it* [up]*". (2)*

A graphic description of withdrawal symptoms and the attempts to overcome them was given by another participant:

> *"I did not know what was happening inside my body, but when I held a full cup of water, it would reach my mouth half full. I was not able to eat anything with a spoon…. Its effect is abnormal. …..but after that I used it [heroin] to protect me from withdrawal symptoms, but after one week I lost the ability to have an erection." (210)*

Avoidance of withdrawal symptoms precipitated further drug use:

> *"I used it by burning* [heroin]*. Some withdrawal symptoms appeared, such as influenza but ten times worse than normal, and I continued to use it to avoid the withdrawal symptoms." (94)*

Sleep disturbances were particularly problematic and some described how this could precipitate further drug use:

> *" ….during my last treatment, I discharged myself and I used 38 pills of Captogon* [a stimulant]*, which left me without sleep for one week. The Centre was not happy as I discharged myself and relapsed, mainly because of sleeplessness and*

family problems." (242)

Anxiety, a common withdrawal symptom:

"I would get anxiety attacks, feel uncomfortable and [had] *sleeplessness." (230)*

3.4.2 Other physical health problems. In some cases, extreme ill health with near fatality was described. The following is one such account of alcohol-related physical ill health that led the person close to death:

"once they [family] *told me that they broke into the house and found me swollen and unconscious on the floor…. My mother told me that the doctor refused to take the responsibility of me dying in his hospital. He told them take me to die at home." (11)*

Constant tiredness and joint pain were common symptoms:

" after 5 years I started to feel tired, weak and have joint pain, just like death, when I had no pill." (202)

3.4.3 Psychological health. Following the experimentation phase, most individuals continued to use substances because of their perceived or real beneficial psychological effects. For most people these beneficial effects diminished and negative consequences started to dominate, including low mood, anxiety, depression and suicidal tendencies. Some individuals started using substances to overcome the negative psychological states. The following is an example of a patient unable to cope with stress who started "self-medicating" with alcohol and found his troubles escalating:

"In 2003 my father was admitted to the intensive care unit in a serious condition. Because I was so annoyed and angry over my father's sickness, I drank 7 cans of vodka (250 ml) that day. I drank all of it once during working hours and because of that I kicked all the customers out of the shop. The shop set on fire; police and fire-fighters helped me and they did not file a case against me but registered it as an un planned accident," (224)

Several participants had tried to commit suicide in moments of despair:

"I tried to [commit] suicide three times because I have no money" (220)

Suicide attempts also took place when people were under the influence of substances:

"I tried to commit suicide once at home by trying to throw myself from the 4th floor. [I] failed because my father intervened. Several times I also injured myself with a blade while I was drunk and found out about it only the next day." (224)

3.5 Social aspects of addiction

Interviewees painted a vivid picture of the social consequences of substance use and addiction from disruption in education, poor employment history, economic difficulties, estrangement from family and marital breakdown to problems with the criminal justice system and imprisonment. The sub-themes that emerged were:

- Education
- Financial problems
- Employment
- Trouble with the police and prison
- Marital breakdown

3.5.1 Education. The study sample had several participants who had started university but did not finish their studies because of their drug use. The disruption and non-achievement in education emerged as a key consequence of their addiction. There were many examples of how substance misuse affected their education. Substance use could disrupt education at school level:

"I left school and I had a big problem with my parents. I took it as a serious challenge and left home and started to drink." (2)

Some participants started their addiction at university. One former student's academic performance deteriorated because of drinking, but in this case the participant managed to recover:

"My first year at high school passed without studying anything, regardless of how much I told myself to study. I even had a study book to cheat during exams but I couldn't because I wasn't familiar with the text book. I couldn't even cheat because I never studied… I was known, as I told you, to the security office at the university and specifically the [name] *University and the intelligence office. I was involved in several problems. My GPA* [academic score] *went down below 2 and I had received a final warning to improve my GPA over 2 or I'd get expelled, so I worked hard during this semester and stopped the booze to start studying and saved my status." (84)*

However, there were several examples of participants being expelled from university because of poor academic performance and conduct due to substance use:

"I was used to taking drugs after this stage, more and more, until it became a normal thing. I was either absent from the university or going drunk…. No one knew that I was expelled from the university until I returned to Jordan." (2)

Non-completion of education was clearly attributed to substance use in several cases:

"My first challenging experience is that I had a big loss, in that I did not complete my academic bachelor degree because of the addiction. This stuff hampered me from pursuing my masters." (230)

3.5.2 Financing substance use. All participants openly discussed how they financed their substance use. Obtaining drugs became a major preoccupation of individuals. As problems escalated, borrowing money, selling property and stealing indicated the drift into more serious problems including stealing and selling home goods. Obtaining money for drugs became the most important issue. Threatening family members for money, even if it destroyed the relationship with them, is described by one participant:

"What was crucial was the availability of money to buy drugs. I collected money from my brothers by force or sometimes with threats. The substance became the biggest component of my life and I didn't care if I lost my relationships with my family, though now I have lost them all." (2)

Some interviewees had family money that helped to fund their substance use:

"I was very spoiled. My family in Jordan sent me money all the time. Sometimes, I took money from my uncle." (11)

The majority of those who depended on a fixed income were using it and taking loans to maintain their habits:

The first phase lasted 5 years. I was a user of alcohol only in social events that did not affect my financial ability. The second phase, also lasting 5 years, was when I was an addict. This affected my income and I took bank loans to cover my alcohol needs." (218)

Selling home goods was another quick way to generate a small amount of money very quickly. One participant described selling anything he could from the family home to fund his substance use:

"Yes, I started to keep some of the drink for the morning. Sometimes I could not because I did not have enough money and my family refused to give me some, so I started to sell home furniture. Once, when I did not find anything at home, I sold the gas cylinder" (11)

Stealing from other people as part of a more established criminal gang, and not caring about the consequences, was mentioned:

"I wasn't committed and I was ready to do anything to get the money necessary to buy the stuff, even burglary. I actually picked this up and was part of structured gangs. I didn't care much for the consequences as long as I was getting the money." (234)

3.5.3 Criminal activity. Most of the participants described their addiction in relation to the fear of being caught by the police, as drug use is forbidden by law in Jordan. Many participants had been to prison. An example of the fast track process used by the drug enforcement agency and the court system is shown below:

> *"Yes, they caught me in Amman with a drink. The next day, I found myself in court accused of being drunk and causing trouble…" (11)*

Ten years of being repeatedly arrested and put in prison had not stopped the following participant using drugs:

> *"I was apprehended several times and jailed for an accumulated period of 10 years. I was arrested then released, then re-arrested and kept under strict parole, but I still never stopped using." (234)*

3.5.4 Employment. Many individuals struggled to keep a job, increasingly so as their dependence increased. A range of previous jobs were described from working in shops, factories and catering to important administrative work. It appears that even if the individuals were making enough money, the escalation of drug use made this state unstable.

> *"I have my own house and clothing shop; at this time I started to spend too much money on heroin." (143)*

Success in business could lead to increased drug use, which eventually caused the business to decline:

> *"I went back to Amman and opened a mineral water shop. I had a lot of customers but I spent all the money on heroin and the shop declined." (212)*

3.5.5 Marital breakdown. Breakdown of marriage emerged as a major social consequence of addiction. Participants volunteered considerably less information about how their marital relationships were affected, often to the point that they ended in divorce, indicating that they were not comfortable talking about this. One participant described conflict with his wife:

> *" …so my wife knew and the conflict started. She refused and insisted I stop using it, especially because I lost social values. The family conflict with my wife increased until I divorced her." (202)*

Similarly, given a choice between heroin or his wife, one patient chose heroin twice which led to social isolation:

> *"My wife asked me to choose between her and heroin and I chose heroin so I divorced her in 1996 for the first time. After 4 months I got her back but divorced again in 1997. I continued my heroin addiction and until 2000… My heroin addiction isolated me from the community and social events" (143)*

3.6 Spiritual consequences of addiction

The majority of Jordanians are Muslims, but the extent of spiritual religious belief and morality differ from one individual to another. Although some people were initially compliant with Islamic teachings, their drug or alcohol dependence had a negative impact on their spiritual life:

> *"At first I was religiously committed, but because of family problems I went to one of my friends and started to drink with him once or twice a week." (218)*

The impact of addiction on the spiritual sphere is clearly demonstrated where participants describe non-observation of fasting during Ramadan, which is fundamental to Muslims:

> *"It* [alcohol] *burned inside my body, but I had to endure the pain to get a free bottle….If I did not have money, he [*the pharmacist*] used to write what I was*

taking as a note until I paid later. He started to help me. Even in Ramadan, I drank alcohol. In Jordan, as we are an Islamic country, all the inns are closed, but not the pharmacies." (210)

"Drinking got worse when I was in Russia. I started to drink vodka, and it was everywhere. You do not feel the spirit of Ramadan there because it is a communist country. Sometimes I even drank with my uncle [during Ramadan]*." (11)*

4. DISCUSSION

4.1 Summary of main findings

This study found the development of addiction was associated with a range of health (physical and psychological), social and spiritual factors. Unpleasant physical withdrawal effects and psychological symptoms including suicide attempts were experienced. There was breakdown in marital and family relations, loss of employment, involvement in crime and religion was neglected.

4.2 Strengths and limitations

A strength of this study is that it is one of the first to examine the manifestation and consequences of addiction in an Islamic culture within the Biopsychosocial-spiritual Model. Other studies in Islamic countries have considered biopsychosocial implications of addiction such as Al-Kandari et al (2007) in Kuwait, but none were identified in the literature that explicitly considered this model including the spiritual dimension. The insight from interviews will be of value to future drug education, prevention and treatment services in a region of the world where published evidence is rare. For example, reducing the stigma of addiction through education, supporting young people entering education away from home and having treatment centres that cover all aspects of the biopsychosocial-spiritual model in their approach to care.

A limitation of the study is that some participants may have been suspicious of the interviewer and concerned about confidentiality. This made some participants difficult to fully engage with. Some participants may have thought the researcher was linked to the

police, despite reassurance this was not the case. This is a more significant issue than in Western cultures because drugs and alcohol are both illegal and forbidden in the Islam religion and the penalties are high. Furthermore, some topics proved difficult to discuss. In particular discussion of marriage and marital breakdown was challenging as it is not culturally acceptable to probe for personal information if the participant did not want to elaborate. These limitations have implications for future research in Islamic cultures. A further limitation is that this study only included men. There was no inpatient treatment facility for women but women could receive outpatient treatment. Extending research to the female population is recommended in the future.

4.3 Findings in the context of the biopsychosocial-spiritual model

The themes that emerged vividly describe personal journeys into addiction and mirror the "biopsychosocial-spiritual" developmental model of addiction (West, 2006). Each domain in the model is illuminated by themes that relate to the personal accounts presented. (Fig. 1).

4.3.1 Biological domain. There was some mention of substance use in the family indicating a possible genetic link, although that may also be environmental. Further probing may have revealed more histories of parental substance use. On the other hand, due to the social stigma which is culturally attached to substance use, participants may have been less inclined to mention family problems.

Many participants described the escalation of use from experimentation to dependence consistent with what is described as neuroadaptation in the bio-psychosocial model. The biopsychosocial model also described the basis of reinstatement of the behaviour after a period of abstinence (relapse). Participants described this process in their stories very clearly. Craving, which is both a biological and psychological phenomenon, was described in detail and was something participants struggled with. Withdrawal symptoms were described including pain, headache, sweating, and diarrhoea. Patients described a cycle of substance use to avoid withdrawal.

4.3.2 Psychological domain. Mood was one the biggest factors in the psychological sphere. This was labelled by some participants as sadness, loneliness, anger, frustration, and by

others as stress caused by family conflict. The narratives also picked up the circular nature of emotional problems and addiction with one contributing to the other and maintaining the addiction. This was also 'blamed' for relapse. The stories related how the ability to cope with difficult emotions and stress seemed to diminish once addiction developed. The non-coping with stress and emotion manifest as psychiatric illnesses and, in some cases, attempted suicide.

A decline in intellectual functioning was a consequence of substance use for a number of participants. Having started their substance use as students in the early stages of higher education, several described how their studies were disrupted and promising careers were ruined.

4.3.3 Social domain. Detailed accounts were given of settings and the social context of use, diminishing social circles, isolation, disruption of family life, marital breakdown, disruption of education, loss of home and property and the drift into crime and imprisonment. For many participants, social status was severely affected by their addiction. Some did manage to continue in employment, indeed the level of employment was higher than in treatment population in Western countries where most are unemployed, e.g., the USA (McCoy, 2007)l however, the type of employment tended to be manual or low skilled work and many had lost jobs in the past.

4.3.4 Spiritual/religious domain

It has been observed that religion can be protective against addiction in Islamic countries (UNODC, 2011). Indeed, Miller (1998) noted that religion more generally is protective of addiction. All participants in this study were Muslims. Praying five times a day, not indulging in forbidden activities such as substance use, are all part of the spiritual world of Islam as is maintaining family relationships. Non-observance of these practices as a consequence of substance use emerged as a theme. In this culture, drifting away from religion may involve drifting away from family and social networks as the Islamic religion is so fundamental to social structures. Thus substance use had the added stigma of being both illegal and against Islam. This emphasised the power of addiction in overwhelming the strong religious culture of Islam. Given Miller's exploration of the differences between religion and spirituality (Miller, 1998) it would be of interest to study whether addicts still

had a spiritual dimension despite their non-observance of religious practices. If so, focusing on the spirituality could be an important component of treatment and rehabilitation in this setting.

4.4 Conclusion

This qualitative study sought to consider addiction in a spiritual framework in an understudied population, i.e., a treatment population in Jordan, an Islamic country. The study found that despite some differences in emphasis, the biopsychosocial, spiritual model of addiction fitted well particularly given the relative importance of religion in Islamic culture.

Author Contributions

H Al Ghaferi undertook all data collection and analysis and contributed to a draft of the manuscript.

C Matheson was involved in design, data analysis and had a major role in the preparation of the manuscript.

C Bond was involved in study design, analysis and contributed to a draft of the manuscript.

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Declarations

H Al Ghaferi: Nothing to declare.

C Matheson: Nothing to declare.

C Bond: Nothing to declare.

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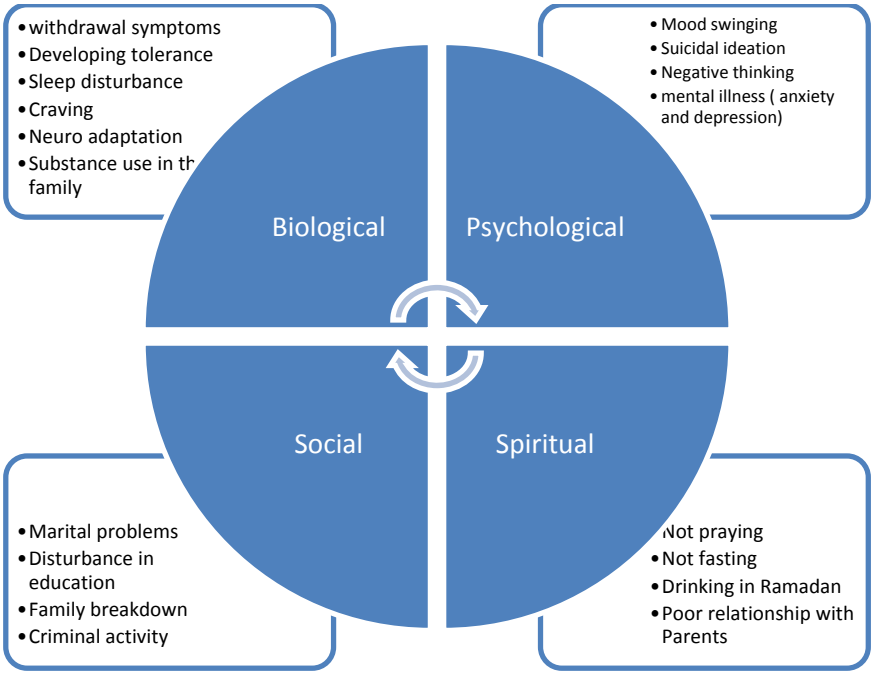

Fig. 1

Figure 1. Biopsychosocial-spiritual Model

Table 1: Demographic profile of participants

Ref	Age	Marital Status	Employment	Educational level	Substance
2	23	Single	Employee	Primary	Alcohol
11	37	Divorced	Unemployed	Primary	Alcohol
31	52	Divorced	Unemployed	Primary	poly substance
84	24	Single	Unemployed	Secondary	alcohol
94	38	Divorced	Unemployed	Secondary	Heroin
142	42	Divorced	Employee	Primary	Alcohol
143	29	Married	Employee	Secondary	Heroin
201	33	Divorced	Employee	Primary	poly substance
202	35	Single	Unemployed	Secondary	Alcohol
203	40	Divorced	Employee	University	Poly sub
210	34	Divorced	Unemployed	Secondary	Alcohol
212	26	Single	Unemployed	Primary	Heroin
218	23	Single	Unemployed	Primary	Poly substance
220	39	Married	Unemployed	Primary	Alcohol
224	44	Divorced	Unemployed	Primary	Heroin
225	30	Single	Own business	Secondary	Alcohol
226	35	Married	Unemployed	Primary	Poly-substance
230	31	Single	Unemployed	Secondary	Alcohol
231	25	Divorced	Unemployed	Primary	Alcohol
238	39	Single	Unemployed	Primary	Poly substance
242	47	Married	Unemployed	Secondary	Alcohol
245	34	Married	Unemployed	Secondary	Alcohol
234	45	Divorced	Unemployed	Secondary	Alcohol
223	41	Divorced	Employee	Secondary	Alcohol
140	40	Single	Unemployed	Secondary	Alcohol