ADAPTATION OF COMMUNITY REINFORCEMENT APPROACH FOR THE TREATMENT OF DRUG ADDICTION

MUHAMMAD SAGHIR

74-FSS/PHDPSY/F-18

DR. MAZHAR IQBAL BHATTI

Assistant Professor

In-charge programme M/F

Department of Psychology

Faculty of Social Sciences

International Islamic University Islamabad

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MUHAMMAD SAGHIR
74-FSS/PHDPSY/F-18

Department of Psychology

Faculty of Social Sciences

International Islamic University Islamabad

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Acceptance by the Viva Voce Committee

(This page will be provided by the Department of Psychology)

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Dean Faculty of Social Sciences

_____

Chairperson Department of Psychology

_____

Supervisor

_____

External Examiner

_____

Internal Examiner

DECLARATION

I, **Mr. MUHAMMAD SAGHIR**, Registration No. **74-FSS/PHDPSY/F-18** student of **PhD** in the subject of Psychology, session **2018-2024**, hereby declare that the matter printed in the thesis titled: **Adaptation of community reinforcement approach for the treatment of drug addiction** is my own work and has not been printed, published and submitted as research work, thesis or publication in any form in any University, Research Institution, etc in Pakistan or globally.

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Certified that the research work contained in this thesis titled: *Adaptation of community reinforcement approach for the treatment of drug addiction* has been carried out and completed by **Mr. MUHAMMAD SAGHIR**, Registration No. **74-FSS/PHDPSY/F-18** under my supervision.

_____ _____

Date **Supervisor**

In-charge Programme M/F

Assistant Professor

Department of Psychology

International Islamic University Islamabad

Dedication

This dissertation is dedicated to my family, whose unwavering love, support, and encouragement have been my constant source of strength throughout this journey. To my parents, for their sacrifices and belief in my potential, to my sweetheart Rabia Nazir for her moral and emotional support throughout this journey. And to my siblings, for always being there with a listening ear and a helping hand.

I would also like to dedicate this work to my mentors and colleagues, whose guidance, wisdom, and collaboration have played an integral role in shaping my academic growth.

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List of Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
ARQ	Addiction Recovery Questionnaire
ARQ-U	Addiction Recovery Questionnaire-Urdu
CRA	Community Reinforcement Approach
DSM-5-TR	Diagnostic and Statistical Manual of Mental Disorders-5-TR
HIV	Human Immunodeficiency Virus
IACRA	Indigenously Adapted Community Reinforcement Approach
IICRA	Islamically Integrated Community Reinforcement Approach
PTSD	Post Traumatic Stress Disorder
SPSS	Statistical Package for Social Sciences
SUD	Substance Use Disorders
SID	Substance Induced Disorders
UNODC	United Nations Office on Drugs and Crime

List of Annexure

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Abstract

Substance use disorder (SUD), its prevention, treatment and relapse are a global challenge. To address the issue, the study adapted an evidence-based treatment called Community Reinforcement Approach (CRA) into Islamically Integrated Community Reinforcement Approach (IICRA) and examined its efficacy in treating SUD. This thesis is based on three studies; where the first study explored the need assessment of IICRA by interviewing four experts, two of them were clinical psychologists and two were psychologists. The thematic results revealed that patients and families were unaware of the process of the treatment, limited family role in treatment, low recovery rate, lack of training, model is not evidence based, no treatment for comorbidity, no adherence to religious and cultural values. In second study, 12 items of Addiction Recovery Questionnaire (Truby, 2020) translated and adapted into Urdu on a sample of 140 patients through convenient sampling from residential treatment facilities. CFA confirms the factor loading on three subscales such as normal living, abstinence and positive expectancy with an alpha reliability of (α = .60). The third study was based on randomized control trial on 68 diagnosed substance users, randomly assigned to treatment (n = 34) and control (n = 34) groups for 90-120 days in two different residential treatment facilities. The treatment group received IICRA and the control group continued with their conventional treatment. The results derived through ANOVA indicate that there are significant differences in experimental and control group on SCL 90 (Post) which indicate that interventions based on IICRA model has treated the comorbidities with SUD in the experimental group more effectively than the control group. Computed results for post assessment of recovery, first follow up, and for the second follow up indicate that IICRA has demonstrated significant recovery from SUD.

Keywords: substance use disorder, recovery, relapse, comorbidity

Introduction

Substance is defined as any psychoactive compound potential to cause health and social problems including addiction, these substances are legal and illegal as well and regulated through licensure for prescribe drugs (McLellan, 2017). Based on behavioral and pharmacological effects these substances can be divided into seven categories such as Nicotine (cigarettes, vapor-cigarettes, cigars, chewing tobacco and snuff), Alcohol (including all forms of beer, wine, and refined liquors), Cannabinoids (marijuana, hashish, hash oil, and edible cannabinoids), Opioids (heroin, methadone, buprenorphine, oxycodone, vicodin, and lortab), Depressants (benzodiazepines and barbiturates), Stimulants (cocaine, amphetamine, methamphetamine, methylphenidate and atomoxetine), and Hallucinogens (LSD, mescaline and MDMA).

Substance Use Disorders (SUD) is a cluster of physiological, cognitive and behavioral symptoms which indicate the compulsive use despite of having significant substance related problems. Moreover, according to American Psychiatric Association [APA], (2022) mentioned the diagnostic criteria which include eleven different criteria to diagnosed SUD. Criterion A involves four areas such as impaired control (1-4), social impairment (5-7), risky use (8-9), and pharmacological criteria (10-11):

- Criterion 1. Taking substance in larger amounts or over a longer period than intended.
- Criterion 2. Persistent desire to reduce or regulate substance use as well as multiple unsuccessful efforts to decrease or discontinue use.
- Criterion 3. Individual may spend a great deal of time obtaining the substance, using the substance, or recovering from its effects.

- Criterion 4. Craving is demonstrated as an intense desire or urge for the drug that may occur at any time but is more likely when in an environment where the drug previously was obtained or used.
- Criterion 5. Recurrent substance use may result in a failure to fulfill major role obligations at work, school, or home.
- Criterion 6. Continue substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance.
- Criterion 7. Important social, occupational, or recreational activities may be given up or reduced because of substance use.
- Criterion 8. Recurrent substance use in situations in which it is physically hazardous.
- Criterion 9. Persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
- Criterion 10. Tolerance is signaled by requiring a markedly increased dose of the substance to achieve the desired effect or a markedly reduced effect when the usual dose is consumed.
- Criterion 11. Withdrawal is a syndrome that occurs when blood or tissue concentrations of a substance decline in an individual who had maintained prolonged heavy use of the substance. After developing withdrawal symptoms, the individual is likely to consume the substance to relieve the symptoms (American Psychiatric Association [APA], 2022).

According to DSM-5-TR, severity of the SUD is based on the number of symptoms experienced by the individual. Presence of two to three symptoms specify the mild level of SUD, similarly, presence of four to five symptoms suggest moderate level, and severity of SUD is determined by presence of six or more symptoms.

Drug use is continuously increasing globally. According to the world drug report (United Nations Office on Drugs and Crime [UNODC], 2023) worldwide number of drug users has increased from 240 million in 2011 to 296 million in 2021. The increase was 23% and the substance users aged between 15-64 years. Cannabis was found to be most commonly used drug with 219 million users globally in 2021, most of the cannabis users were men (70%). Number of amphetamine users were 36 million, 22 million for cocaine and 20 million used ecstasy type substance. On contrary, the proportion of female users in case of amphetamine type stimulants was higher as 45%. Moreover, the non-medical use of pharmaceuticals among females was reported as between 45-49%. But the male users were found to be more into opiates (75%) and cocaine (73%) use. Opioids were highest ranked drug among the group of substances with severe drug related harm such as fatal overdoses. In 2021, the use of non-medical opioid among people was estimated as 60 million, whereas 31.5 million opiates user were mainly using heroin (UNODC, 2023).

Additionally, global burden on health and health care systems was highest with cannabis and opioids use and most drug use disorders were also the contribution of cannabis and opioids. Most people with use of cannabis and opioids seek treatment for the problem caused by using. The regional differences were also reported in the report in terms of primary drug for entering treatment. Opioids are most reported drug type for entering treatment from most of the European regions and subregions of Asia, whereas cocaine in

Latin America, cannabis is commonly reported in different parts of Africa and methamphetamine is reported in East and South-East Asia (UNODC, 2023).

According to the UNODC (2023) world drug report on Drugs and associated issues among young people and older people showed that the world has a lot of young people. In 2016, about 4 out of every 10 people were younger than 25 years old. Europe had the lowest number of young people, while Africa had the highest. But by 2025, the number of young people aged 15-24 is expected to decrease in all regions. Surveys consistently show that drug use tends to be higher among young people compared to older individuals. It's important to continue studying this trend to better understand the factors contributing to it. Peak levels of drug use are often seen among those aged 18-25.

The "cohort effect" means that when looking at lifetime drug use, we need to consider how people's attitudes and behaviors are influenced by the time they were born in. Factors like drug availability and popularity during their youth can impact their likelihood of trying and continuing drug use. It's important to understand how societal factors shape our behavior. The observations about the baby boomers in the United States are interesting. When a large group of people start using a substance, it can have long-lasting effects on the prevalence of drug use in the general population. As it is hard to compare drug use among different age groups worldwide because of limited data. But we can still look at specific examples from different places to see how drug use varies among age groups. When analyzing data from different regions, it is clear that drug use is generally higher among young people compared to older individuals. It seems that older people tend to follow the drug use patterns that were established during their youth (UNODC, 2023).

People over 40 often have different drug use patterns compared to young people. However, substances like opium and khat, which have a long history in certain societies, can still be used by older individuals. Older people usually stick to the drug habits they developed when they were young. Interestingly drug use patterns can be influenced by cultural traditions. Young people in European countries including Norway and Turkey, tend to use amphetamines and ecstasy more than older people. They also have higher rates of overall drug use. However, ecstasy use is much more common among those aged 15-24 compared to those aged 45-54. Interestingly, drug use varies among different age groups. In England and Wales, the 20-24 age group had the highest drug use rates in 2016-2017, while those aged 45 and older had lower rates. Drug use is higher among 18 to 24 year-olds in Bolivia, and cannabis is the most commonly used drug across different age groups. Among different age groups in Bolivia, the non-medical use of tranquillizers is higher among 36 to 50 year-olds. However, the past-month use of tranquillizers is similar across age groups, except for 12 to 17 year-olds. Research shows that older people use higher established substances such as khat in different forms and cannabis, cocaine and heroin are frequently used among those aged 18 to 24 (UNODC, 2023).

The data shows that there are differences in drug use between different age groups in the United States. It seems that the cohort effect plays a role in these differences, especially among those who were young in the late 1960s and in the 1990s. It's fascinating to see how lifetime use of substances like cannabis is comparable among those aged 50-54 and 18-25. Almost half of people in both age groups have tried it at least once. Research shows that young people, especially those aged 18-25, tend to have higher rates of drug use compared to older individuals. This is particularly true for stimulants and "ecstasy."

The use of these substances is much lower among older adults. It's important to continue studying these trends and finding effective ways to address drug use among different age groups (United Nations Office on Drugs Crime [UNODC], 2018).

According to a report on drug use in Pakistan published in collaboration of the Government of Pakistan's Ministry of and Interior and Narcotics Control, Pakistan Bureau of Statistics, and UNODC revealed that the general prevalence of drug abuse is increasing in Pakistan. It reports that substantial portions of population aging 15-64 are suffering from overwhelming consequences of substance abuse. The report proposed that the rate of substance abuse is 5.8% which comprises of 6.4 million adults using drugs in their last 12 months and 4.25 million adult users were concluded as dependent on drugs in Pakistan and they need structured intervention for treatment for SUD (United Nations Office on Drugs and Crime, 2013). Drug use in Pakistan with respect to gender is highly differential, men are more into drugs whoever females have low levels of substance use especially females are more commonly misuse prescriptions of opioids, sedatives and tranquilizers. Additionally, drug use was more common among individuals aged between 25 to 39. On another hand, survey showed that the prevalence of HIV risk behaviors was high among those who inject drugs, there are few reasons of it such as lack of knowledge about transmitting HIV virus, low preventive measure for preventing HIV transmission and no awareness about their own status of HIV (United Nations Office on Drugs and Crime [UNODC], 2013).

Moreover, three features of substance misuse and SUD were important for public health and safety that's why they worth mentioning here. First, substances are widely used or misused, secondly, high dose of the substances and intake at inappropriate situations can

lead to serious health and social problems because of immediate use or over time which is categorized as substance misuse. Binge drinking is one of the common types of substance misuse. Besides, other health and social problems of substance misuse can include serious consequences such as overdose death or stroke, car crash, legal issues, sexual abuse and intimate partner related abuse, child neglect, abuse, and suicide attempts. Thirdly, the prolonged and repeated use of substances at high dose and with high frequency resulting not only above-mentioned problems but separate and independent condition which significantly impairs health and functioning of the individual and required specialized treatment is known as SUD. Range of SUD can range from mild and temporary to severe and chronic (McLellan, 2017).

In treatment of drug addiction or substance dependence, high relapse is the most common problem. Mostly individuals with drug abuse come to treatment but they get back to drugs after treatment because of high relapse rate. Drug addiction is a chronic and relapsing disorder. Despite of its negative consequences, the compulsive drug seeking or drug taking behaviors are persistent among those who use drugs. Initially drugs produce euphoria or pleasure which reinforce subsequent use as well (Cami & Farré, 2003). Furthermore, it is the challenging public health problem. In a survey conducted by South Asia Strategic Stability Institute reported in Senate Standing Committee on interior had explained that 53% of students from top leading private schools were addicts, they reported that seven million people are addicted to drugs and 700 people die every day due to drugs related complications (Ahmed et al., 2020). According to Malik and Sarfaraz (2011), most of opiates users use heroin and they abuse multiple drugs too. Drug abuse among the youth is increasing and it is a major problem in Pakistan. According to the ministry of Narcotics

control Islamabad (Masood & Us-Sahar, 2014) reported that 25% of the young population is somehow using any kind of drug and cannabis is the commonly used drug. Moreover, drug addiction involves considerable morbidity and mortality which makes it a serious socioeconomic concern of Pakistan (Javed et al., 2019).

Theories of Addiction

Instrumental Learning

Addiction of substances arises from the operation of reward and punishment. Addiction is a condition in which a repeated powerful motivation to engage in a rewarding behavior, and because of engaging in that behavior has significant potential for unintentional harm. Addiction is not dichotomous, but it has a degree. Severity of addiction can be assessed through cravings, intensity of behavior that is causing harm, and repeated failure in ceasing the activity (West & Brown, 2013).

Addiction can be developed through different pathologies, and it has different strength, severity and manifestations. It is a chronic condition of motivational system where pathological priority is given to a particular activity. There are three basic types of pathologies in addiction:

i. Indirect abnormalities in motivational system which are related to addictive activities such as depression, low self-esteem, chronic anxiety, poor impulse control etc.

ii. Direct abnormalities in motivational system which are related to addictive activities such as sensitization related to the effect of stimulant drugs, dependence or tolerance and withdrawal symptoms, mood swings by social effect of addictive behavior.

iii. Impact of pathological environment on the motivational system which is not effective in coping with them such as mismatch of lifestyle, social relationship and chronically distressing environment (West & Brown, 2013).

Instrumental learning proposed that impaired conscious control appears in substance use because of reinforcement mechanism, this mechanism operates beyond conscious control and leads dependence of drugs. For instance, heroin rewards behavior that leads its addiction. Similarly in neuroadaptation, abstinence is aversive and so drug taking is reinforced by learning mechanisms such as escape and avoidance. There are different learning mechanisms for instrumental learning, these are positive reinforcement, negative reinforcement, cues and avoidance. Positive reinforcement is a process in which a rat or a dog learns to press the lever for obtaining food as a reward. Same is the case with drugs, drugs tap into the motivational system and in effect motivate the user to sit up and crave for drug. Hence, drug acts as a positive reinforcer and with repetition it strengthens the associations among cue-response-reward. According to Wise and Koob (2014), word addiction is not mentioned in DSM as a diagnostic category. Addiction means different thing to different persons and to experts. When someone thinks about addiction it means different conditions of addiction such as addiction as a condition where the person asks or seeks treatment, or someone is problematic to others even to their significant others or being in a progression of addiction or progress to later stage of addiction. This is a clinical perspective which focuses on symptoms and later might lead to develop medication. Second perspective is scientific perspective which focuses on the process of addiction, where someone tries to look for conditions for development of addiction. It is a transition

from voluntary use to compulsive use. This perspective seeks differences between cause (what comes first) and consequence (what follows). So, there are two points, first point seeks the starting point of drug use helps in determining the extreme of addiction. Second seeks an intermediate point, a point of no return. This perspective proposes that addiction does not appear suddenly, but it occurs gradually through first use to be reinforced through a series of successive use. To clear the point mentioned above, taking example of opiate addiction as repeated use of opiate can trigger dependence and tolerance and higher doses are required to maintain the effectiveness of drug related outcome or pleasure. Abstinence from opiate causes abrupt symptoms of withdrawal such as thermoregulatory (chills and sweats) and gastrointestinal (cramps, diarrhea) disturbances. Chills, sweats, cramps, body pains and diarrhea are the withdrawal symptoms of opiate, and it is considered as opiate addiction. That is the reason that compulsive intake is continued to prevent unpleasant withdrawal symptoms (West & Brown, 2013).

On contrary to positive reinforcement where the user seeks rewarding stimuli however in negative reinforcement user seeks to avoid unpleasant stimuli. Our motivational system prepared us to avoid unpleasant or painful stimuli. Hence, in drug addiction or substance use, the prolong use of substance maintains its level in body and that causes tolerance and adapt the body physiologically. Periods of abstinence or abrupt cessation from substance initiates imbalance in the body and it can generate physiological symptoms which are unpleasant and characteristics of withdrawal syndrome. These unpleasant symptoms reinforce intake of substance to avoid withdrawal. This mechanism doesn't involve any conscious control over substance use (West & Brown, 2013).

Dependence on any substance, object, activity, role or any stimulus source depends on a crucial feature which is its negative affect in the absence of that thing. Dependence is defined as physiological adaptation by drug use which leads to compulsive use to prevent symptoms of withdrawal. These terms are used interchangeably in different contexts and languages or political reasons. The degree of dependence can be managed through the amount of this negative affect. The range of the affect is mild distress to severe distress, or it may be managed through the amount of difficulty, or it may become difficult to do without it (Russell, 1976).

According to the negative reinforcement view of addiction, it involves drug generated sensitization of anti-reward rather a recreational drug use and sensitization of reward. In this view, addiction has three stages such as binge/intoxication, withdrawal/negative affect, and preoccupation/anticipation. With the passage of time these stages worsen, and this framework involves the element of impulsivity and compulsivity along with positive and negative reinforcement. Stages of addiction cycle feed into each other making it intense and eventually lead to pathological state called addiction where negative reinforcement predominates. Negative reinforcement is a process in which removal of an aversive stimulus increases the probability of a response, for example, aversive stimulus in addiction is the negative state or unpleasant feelings caused by addicted substance. This negative emotional state is derived from negative reinforcement of drug addiction is called opponent process such as negative emotional state is not merely mediated by deficit in brain systems which basically mediate positive reinforcement but by acquiring brain stress/dysphoria system that mediate negative reinforcement (Wise & Koob, 2014).

Another important feature of instrumental learning is avoidance. Avoiding discomfort or pain is a common learning drive among animals as well as in humans. So, when the avoidance is successful that means no discomfort is experienced. Drug users tend to avoid withdrawal symptoms, but they do not wait for withdrawal to initiates physiologically even a mere thought of negative symptoms or discomfort tap into negative reinforcement to engage avoidance and use the desired substance. Cues are also important for completing the learning experience they are discriminative stimuli. Cues are associations between behavior and rewards. Cues are required for the occurrence of behavior. Cues are present in the environment of the individual. Hence, the craving is the subjective manifestation of the learned behavior or habit which can be triggered in the presence of a specific contextual cue such as the time evening or morning, specific situation being at party. Substance use has associations with specific environmental or contextual cues and the presence of these cues cause craving which triggers the occurrence of the behavior (West & Brown, 2013).

Classical Conditioning in Substance Use

Classical conditioning focuses on the role of cues in generating impulses to engaging of behaviors. According to the model of classical conditioning for substance use, substance related craving occurs by repeated pairing of environmental stimuli with substance related effects, for example, decreasing the blood level of substance (unconditioned stimulus) can triggers withdrawal symptoms or effect which is unconditioned stimulus. Periods of abstinence can be followed by the association of stimuli with falling blood level of the substance to elicit the conditioned response like substance related withdrawal. This was also explained further by Drummond (2001) in the proposed

model cue-elicited-craving, they stated that cue elicited craving is different from craving caused by withdrawal. Because the craving elicited by cues such as sight and smell of substance, being in party, music is different from the craving occurs with withdrawal syndrome.

Craving is defined as a strong desire and how a person with substance related problems uses words to describe any desire or urge, even a weak desire to use the substance (Singelton & Gorelick, 1998). Moreover, researchers and clinicians use this term craving as liking, urges, need, wanting, desires, intentional or compulsive use. In general craving is viewed as a conscious experience of a desire to use drug (Drummond, 2001).

Conditioned Withdrawal Model

According to Wikler (1948) based on conditioning theories of craving, he proposed a model of craving specifically about relapse. He pointed out that through the process of conditioned learning, a neutral stimulus in the environment can be paired over the time with repeated drug taking can trigger the conditioned response. It was also proposed that the conditioned response is triggered by cues such as sight of syringe or a place of drug use. It is similar to drug withdrawal. Hence, this conditioned leads to relapse, and addict's desire to use drugs for avoiding unpleasant withdrawal symptoms. Later, Drummond et al. (1990) expanded this conditioned withdrawal model and described cue as a conditioned stimulus for example, sight and smell of a favorite drink is repeatedly paired with falling of blood alcohol level (unconditioned stimulus) initiates alcohol withdrawal of a drinker (unconditional response) after the heavy drinking session. After following an abstinence period where withdrawal settled down, the environmental cues serve as conditioned stimulus which can trigger the conditioned response (alcohol withdrawal). As craving is

the part of withdrawal syndrome. The conditioned craving in this model is the conditioned response of alcohol withdrawal. So, the craving is relieved by alcohol consumption and restoration of drug addiction is reinforced by negative reinforcement.

According to Drummond (2000) there are two types of craving. First is cue elicited craving and second is withdrawal craving. Craving depends on withdrawal syndrome, severity of dependence and withdrawal. Withdrawal craving is described as, during alcohol withdrawal craving will reach at high peak and decline gradually as the time passes, same happens with symptoms of withdrawal. So, all these symptoms such as withdrawal and craving are relieved by intake of alcohol. The severity and duration of these symptoms is related to the degree of alcohol dependence and some elements of withdrawal also including craving. It can last for several weeks or months after the absence of visible withdrawal symptoms such as tremors. Withdrawal craving could be defined as subjective experience of craving in context with unconditioned alcohol withdrawal. It can vary during a cycle or repeated cycles of withdrawal and drinking. Withdrawal craving can occur in those environments which contains alcohol related cues and environment without such cues.

Similarly, symptomatic similarities between drug addiction and obsessive-compulsive disorder have been identified in term of craving because craving is defined in past as a strong urge or desire to use substance. Also having physiological, psychological and behavioral elements associated with craving. These elements characterized craving as indulging the individual in obsessions leading to compulsions for using substance. Subjective craving for substance abuse or alcohol has been described as having obsessive

element and compulsive behaviors for drug use and this model also describes similarities in underlying neural pathways between both disorders (Modell et al., 1992).

Conditioned Opponent Process Model

Solomon and Corbit (1974) proposed opponent process theory and based on this theory Siegel (1989) proposed a model which is known as conditioned opponent process model. According to the model, over the course of drinking habit, the body develops opponent processes known as homeostatic responses. These responses react opposite to the drug's effect. For instance, if a drug causes positive hedonic state (pleasure), the body homeostasis causes negative hedonic state (displeasure) as a response. With the combination of both leads to hedonic state to neutral state and gradually it grows in size and duration as a result, it accounts for drug tolerance. Thus, it will oppose and neutralize the drug effect causing tolerance. As compared to drug effect, the onset of opponent process is slow, but duration is longer. As, the initial effect of drug has worn off, the user with increasing use can experience dysphoria (withdrawal).

In relation to conditioning and relapse, the model predicts that conditioned response by drug cue will be a conditioned opponent process as negative hedonic state such as addict will take more drug to overcome negative hedonic craving state. On the contrary, cue elicited craving can only be triggered in those environments containing alcohol related cues. Cues that can trigger such type of craving can vary individual to individual. Time duration is different in cue elicited craving as compared to withdrawal craving. Cue elicited craving can only occur in presence of cues and it is short lived that can last from few minutes or hours at most. It is most likely to occur on the conditioned response to alcohol cues (Siegel, 1989).

Human Motivational System in Substance Use

The understanding of substance use or drug addiction required the understanding of motivational system in humans. It is the process of brain system which regulates and energies actions as well as shaping the behavior at regular basis. This motivational system involves part of brain processes which direct actions and human motivational system has five following interacting subsystems acronyms as PRIME:

i. Plans: Conscious mental frameworks for future actions and commitments
ii. Responses: Produces responses such as starting, stopping and modifying actions
iii. Impulses or inhibitory subsystem: Impulses perceived as urges
iv. Motives: Wants and needs of the system
v. Evaluations: Develops beliefs to evaluate as good and bad

According to West and Brown (2013), actions are caused by impulses and inhibitions. It occurs in the result of stimuli or information, and motives behind the action. So, motives work through motives and inhibitions, also evaluations are dependent on motives. We think plans are directly influencing our actions through evaluations, but they may act through desires. Motives and actions operate through stimuli and drives (e.g. craving) causing generalized emotional states (e.g. restlessness, excitement, sadness) and targeted emotional states (e.g. pleasure, liking, euphoria). The strength of a given motive derives are linked from the strength of associated emotions and drives. This motivational system also develops behavior patterns. These patterns are repeated behaviors over days, months or years. For instance, smoking a cigarette or drinking a glass of wine is behavior but smoking is behavior pattern. These patterns are common in SUD. Impulses, motives and plans strengthen the substance use. Hence, motives can impact behaviors through

impulses and inhibitions, but evaluations are dependent on motives, and plans are carried out through motives and evaluations.

Incentive Sensitization Theory

The incentive sensitization theory of SUD has an alternative viewpoint than pleasure seeking through substances and taking substances to avoid withdrawal. Robinson and Berridge (2000) explained incentive sensitization based on four points. First, addictive drugs could produce long lasting neural adaptions. Second, the brain systems that got change because of drug intake include same process of incentive motivation and reward involved in normal reward system. Third, neuroadaptations for SUD make these brain systems hypersensitive or sensitized to drugs and drugs related cues or stimuli. Forth, hypersensitive brain systems do not regulate the euphoric or pleasurable effects of drugs rather it's the mediation with subcomponent of reward known as psychological process of incentive salience. This incentive salience is responsible for instrumental drug seeking and taking behavior. Incentive sensitization has some major features such as psychomotor sensitization, individual differences and circumstances related drug administration. The theory of incentive sensitization can be explained better in relation with these features.

Psychomotor sensitization is caused by repeated administration of drug of abuse which can enhance sensitization (increased drug effect). These effects can be evident through psychomotor activity or rotational behavior patterns caused by the stimulant type of drugs. These psychomotor effects of drugs are seen to be relevant to SUD because of the stimulation of same neural pathways in the brain. These overlapping neural pathways or substrates are responsible for rewarding effects of drugs. This neural pathway is mesotelencephalic dopaminergic pathways including nucleus accumbens and related

mesolimbic dopaminergic pathways. Mesolimbic dopaminergic pathway is responsible of drug seeking and drug taking behavior because of its sensitization caused by repeated drug use. This system is related to incentive motivation and reward. It is separate from the mediating systems responsible for pleasurable effects of drugs. They also differentiate wanting a drug and liking a drug. They proposed that wanting is linked with incentive motivational system although liking is related to craving. Furthermore, wanting may not always be conscious, that is why relapse may occur unconsciously. Sensitization is context specific and can be mediated by conditioning processes. So, the properties of incentives may be strongest in the context in which substances were taken in the past (Robinson & Berridge, 2000; 2001).

Additionally, psychomotor sensitization is commonly caused by repeated use of psychomotor activating stimulant drugs such as amphetamine, cocaine, some other type of abuse drugs including methylphenidate, fencamfamine, morphine, phencyclidine, MDMA, nicotine and ethanol. Another important feature of sensitization is individual differences in term of individual's susceptibility to sensitization. The differences include genetic, hormonal and experiential factors. Moreover, the sensitization also involves factors related to the circumstances of drug administration which includes context specific sensitization the immediate environment which is often the surroundings where the drug is previously taken and repeatedly associated with (Robinson & Berridge, 2000; 2001).

Cognitive Theories

Cognitive Social Learning Theory. Marlatt, (1996) developed this theory and it was developed for understanding relapse and relapse prevention. Cognitive social learning theory has been widely adapted for treatment of drug addiction. The theory stated that

positive outcome expectancy can predict the positive or rewarding effects of substances to engage compulsive. According to the theory, in high-risk situations in which abstinent person confronted with drinking or non-drinking situation to freely decide about either condition is dependent upon one's expectation. Efficacy expectation is the capacity of an individual to have confidence over one's ability to resist drugs related temptations. Moreover, outcome expectations are the beliefs about the consequences of drinking or non-drinking. A positive outcome expectancy is the belief about the positive effects of alcohol or drugs such as relieve of pain leads pleasure. Similarly, negative outcome expectancy is the belief about negative effects of alcohol such as job loss, depressive mood, and hangover. Hence, the outcome will depend on interaction among these factors, for example, having an attitude of positive expectancy with low self-efficacy may enhance the probability of relapse.

According to Marlatt (1996), the role of craving is mediated by anticipated effects of drug taking which are expectancies. According to this reference, craving could be considered as a desire for positive effects of drug. He also proposed that the relationship between craving and self-efficacy is reciprocal where high craving should limit self-efficacy as it challenges the coping skills of an addict.

Cognitive model proposed four types of craving:

i. Craving because of withdrawal symptoms. Explained as a need to feel well.

ii. Craving as a result of lack of pleasure. Tries to improve mood.

iii. Craving as conditioned response to drug related cues.

iv. Craving is caused by hedonic desires. Combining drugs and sex to feel more pleasure.

Craving has its basis in cognitive theory. It is a type of dysfunctional belief about perceived need for drugs (Wright et al., 1993). So, relapse prevention according to the cognitive social learning theory, the effective coping skills training in time of facing high risk situations determine relapse prevention. Efficacy expectations is the confidence of the individual that how is the individual is evaluating his or her coping with relapse when facing high risk situations. Coping with high-risk situations involves effectively coping and training for managing interpersonal environmental determinants such as coping with negative emotional states at two levels. First, coping with frustration and anger, second, coping with other negative emotional states such as sadness, tensions, anxiety, loneliness depression, etc. Another category of determinants involved coping with negative physical and physiological states, it includes managing with physical states associated with prior substance use and coping with other negative physical states such as pain, illness, fatigue and injuries. Testing personal control, giving in to temptations or urges in relation with the presence of substance cues as well as in the absence of substance cues, are also the coping skills determinants.

Interpersonal determinants include coping with interpersonal conflict and coping with social pressure such as direct social pressure (peer pressure or slippery persons) and indirect social pressure (observing others having drug intake as a model of drug use for the patients) (Marlatt, 1996).

Risk and Protective Factors in Substance Use

Dash et al. (2020) conducted research on opioid used disorder with 14 to 19 years old adolescents. Researchers examined the individual level and parental level risk factors among opioid users. A theoretical model for parental and individual risk factors in relation with adverse pain outcomes and persistent opioid misuse in context to pain experience has postulated risk factors, at individual level risk factors comprise of pain related cognition and behaviors such as distress intolerance, pain catastrophizing, and low pain related self-efficacy. It also includes mental health symptoms (anxiety and depression), alcohol, tobacco and cannabis use. Similarly, parental level risk factors include pain experience such as pain intensity and history of chronic pain; and pain cognitions and behaviors, mental health symptoms, history of substance-related problems, and presence of opioids in the home.

Dash et al. (2020) conducted a study in which showed that the most frequently occurring individual risk factors were high pain catastrophizing reported as 46%, history of alcohol use was 40%, elevated depression symptoms were 34% and moderate-high pain intensity was 33%. Similarly, frequently occurring familial and parental risk factors were reported as presence of prescription opioids in the household was 71%, chronic pain in biological mother was 32%, and parental anxiety symptoms were 21%.

A study conducted by Guttmannova et al. (2019) examined marijuana specific risk factors in relation to different aspects of development. Over the course of adolescence, the adolescents' own perception of the harm of regular marijuana usage and their positive attitudes towards marijuana use are the most direct risk factors. The macro level of the youth involves risk factors from various social domains inclusive of favorable attitudes of

peer, parental and community about adolescent marijuana use as well as peer use, enforcement of laws about adolescents' marijuana uses in community. In that study, firstly, to examine the dynamic relationship between marijuana use and risk factors, they selected grade seven to twelve to determine the marijuana related risk factors along with the transitions in marijuana use over the course of adolescence. Secondly, remarkable changes in risk factors from different domains across adolescence while controlling the stability in behavior and the possibility that substance use behavior may influence later levels of risks.

The study was based on community-randomized controlled trial of the Communities That Care (CTC). Sample was generated from a population of 2002 adolescents, the average age at the time of baseline for sixth grade was 11.6 years. Study included the data collected in the period of adolescence and annually collected from grade seven to ten in 2006 to 2009, similarly collected again in grade 12 in 2011. Results of the research showed that only three percents of the individual reported marijuana use in the past month, a positive incline trend was observed over the course of adolescence as 5.6% in ninth Grade, 12.7% in Grade 10 and 17.3% reported by the time they were high school seniors. Similarly, the risk related to marijuana is also steadily increased in each grade for instance, 14.2% adolescents in seventh Grade reported no or low harm for perception of harm and this risk gradually increased to 33.2% by Grade 12. A similar pattern of increasing risk over time was demonstrated for favorable attitudes of youth, parents and community. Perception of community enforcement of laws increased from no to 33.4 % in seventh grade and went on 69% in grade 12. Peer favorable attitudes also increased over time while considering use as pretty good chance of being seen as cool and increasing from five percents in seventh grade to 16% in grade 12 as well as in seventh grade, 10% of the

adolescents reported having at least one best friend who used marijuana, which increased to 57% by Grade 12 (Guttmannova et al., 2019).

Another study was conducted by Khoddam et al. (2016) to determine the risk factors for substance use in adolescents manifesting conduct problems and internalizing symptomatology. For this purpose, they examined conduct problems and internalizing symptomatology starting in ninth grade to predict transitions in substance use during six month follow up period. They examined the relationship between conduct problems and internalizing symptomology including major depressive disorder, generalized anxiety disorder, social phobia, panic disorder, and obsessive-compulsive disorder for adolescent substance use risk. The study enrolled 3874 participants from ninth grade students, from different 10 public high schools in Greater Los Angeles. They were first assessed at baseline in fall 2013 and reassessed at a six month follow up in spring 2014. The retention rate of the study was reported as 97% between the baseline and follow-up.

Results of the study reported the strong relationship between substance use and conduct problems at baseline and in follow-up as well, the likelihood of substance use at follow-up was 72% while adjusting for baseline use and other covariates. Furthermore, each internalizing symptomology domain was significantly linked with risk of substance use at follow up stage, but this relationship was not significant with social phobia. Results for substance specific illustrate that conduct problems showed significantly positive association with alcohol tobacco and marijuana use with significance level at $p < .000$. Similarly, symptoms of major depressive disorder also had significant positive association with every measure of substance use (Khoddam et al., 2016).

Miech et al. (2016) examined the e-cigarette as a risk factor for intensive substance use. Researchers enrolled students of eighth (5060), tenth (4443) and twelfth (8597) grade through a longitudinal study. E-cigarette use was measured during the last thirty days, at least one day use in past thirty days was coded as one and zero for no use. Similarly, use of cigarettes, marijuana, prescription drugs and alcohol binge drinking were also included. Data were collected accordingly. Results of the study investigated that past 30-days e-cigarette use stood at top with highest prevalence of all drug use which was nine percents in eighth grade, 16% in 10^{th} and 17% in 12^{th} grade. However, past 30-days marijuana use and binge drinking in the last two weeks for grade 12 was 21% and 19% which exceeded the past 30-days e-cigarette use. Findings indicate that participants who use e-cigarettes are most likely to use other substances. The prevalence of past 30-day cigarette smoking in eighth grade was 10 times higher among those who used an e-cigarette in past 30 days as compared to adolescents who had not used, on contrary the prevalence among 10^{th} grade was eight times and in 12^{th} grade it was six times higher. For other drug use (binge drinking, marijuana use, and prescription drug abuse), the prevalence of past 30-days uses among e-cigarettes users in eighth and tenth grades was at least four times higher, and in 12th grade at least three times higher.

A meta-analysis conducted by Nawi et al. (2021) reported different risk and protective factors related to substance use. The protective factors in the research reported as high self-esteem, religiosity, grit, peer factors, self-control, parental monitoring, academic competence, anti-drug use policies and strong neighborhood attachment. Hence, research was conducted by Marin et al. (2019) revealed insight about optimism as a protective factor against substance use. The study mentioned that optimism is well known

to be linked with various health behaviors, the relationship among optimism, tobacco smoking and substance use was explored in the study. According to the results of the study, 77% of students were never cigarette smokers, 16% were cigarette experimenters, and only seven percents were regular cigarette smokers. Similarly, hookah smoking turned up as 31% were those who had experienced hookah, and eight percents of the participants were regular hookah smokers. 10% of the students enrolled in the study had used some kind of illicit drugs during life. The relationship between optimism score and cigarette smoking status, hookah smoking status, and illicit drug use was investigated through ordinal logistic regressions. The trend showed that higher score of optimism significantly protect students from being in advanced levels of cigarette smoking, being in advanced stages of hookah smoking and using illicit drugs. Moreover, higher level of optimism was investigated in non-tobacco smokers as compared to experimenter smokers and regular smokers (Marin et al., 2019).

Kliewer and Murrelle (2007) had mentioned the risk and protective factors in their research article. The aim of the study was to investigate the prevalence of substance use and problems associated with substance use, and risk as well as protective factors at different levels of ecological domains of the adolescent in relation with substance use among adolescents from different countries of Central America. Data were obtained from survey conducted in 2000-2001 by Central American adolescents. The sample size of the study comprised of 17215 adolescents aged 12 to 20 years, 52% were females. Three selected countries, Panama (4757), Costa Rica (4948), and Guatemala (7505) were included in the study. Sample was drawn through stratified sampling technique. In this study, risk factors were family drug involvement, negative family interactions,

dysregulation, school disengagement, peer deviance, and exposure to violence similarly, protective factors were belief in God, positive family interactions, parent religiosity, and student-teacher communication.

Results of the study indicated that the prevalence of substance use was reported as alcohol use 62%; drunkenness 22%; cigarette use 40%; marijuana use six percents; other drug use 18%. Significant associations were found with higher lifetime substance use and risk factors of dysregulation, school disengagement, peer deviance, and exposure to violence. On the contrary, belief in God and parental religiosity were the protective factors, significantly associated with lower lifetime substance use. Moreover, model predicting problems with drugs and alcohol predicted that all of the risk factors were negatively associated with problems with alcohol, and most (all but dysregulation and negative family interaction) were significantly associated with problems with drugs. From protective factors, only belief in God was significantly associated with fewer substance use problems (Kliewer & Murrelle, 2007).

Furthermore, the model predicting outcomes from protective and risk factors indicates that increased substance use and substance use problems were significantly associated with risk factors. The combine interaction of risk and protective factors in predicting lifetime drunkenness and marijuana use and problems with drugs and alcohol indicated that for lifetime drunkenness, the risk factor index interacted with belief in God and positive family interaction. Similarly, lifetime marijuana use, the risk factor index interacted with student-teacher communication. For problems with alcohol and problems with drugs, the risk factor index interacted with every protective factor except positive family interaction with alcohol problems (Kliewer & Murrelle, 2007).

A research study was conducted with drug addicts to check the rate of recovery among them in relation to social skills, sociability and state resilience. Data was collected from different rehabs of twin cities of Pakistan (Islamabad and Rawalpindi). The participants of the study were in residential treatment facilities. Results of the study showed that when social skills are low then the non-significant positive relationship was found among state resilience and recovery, similarly, from the mean value of social skills again non-significant positive relationship was found among state resilience and recovery. Moreover, at high value of social skills there was still non-significant positive relationship among state resilience and recovery. Hence its concluded that there is positive relationship among social skills and state resilience and those who have social skills are more resilient and they could avoid drug abuse (Muhammad, 2022).

According to a study conducted by Greenfield et al. (2004) shows the effectiveness of residential substance abuse treatment for women. It analyzes data from the Center for Substance Abuse Treatment's Residential Women and Children/Pregnant and Postpartum Women (RWC/PPW) Cross-Site Study, along with two other national studies. The studies found high treatment success rates, ranging from 68% to 71% abstinent, among women who spent six months or more in treatment. Success rates were lower for women with shorter treatment durations. The article highlights the importance of longer stays in treatment, showing higher rates of post-treatment abstinence. Treatment completion within 3-5 months also appears to have positive outcomes.

Overall, it seems to provide valuable insights into the factors contributing to treatment effectiveness for women. The clients who successfully completed treatment had higher rates of post-treatment abstinence (76%-78%). It's worth noting that most of the

RWC/PPW clients who completed treatment (71%) took six months or more to do so. This suggests that longer treatment durations may be beneficial for achieving positive outcomes. This paper compares the findings of the RWC/PPW study to two other national studies: Center for Substance Abuse Treatment (CSAT)'s National Treatment Improvement Evaluation Study (NTIES) and National Institute on Drug Abuse's Drug Abuse Treatment Outcomes Study (DATOS). Both studies aimed to include a wide range of substance abuse treatment types for both men and women. They also included subsets of women in long-term residential treatment, which is the specific focus of the analysis in this paper. It is interesting to see how the findings from these different studies align and provide a broader understanding of treatment outcomes for women. The sample for this analysis is limited to 32 out of 50 projects that could provide sufficient follow-up data. These projects completed interviews with at least 50% of their former clients who were eligible for a six-month follow-up within the data collection window. The respondent sample consists of 1154 women, representing 75% of the projects, eligible former clients. For the DATOS and NTIES studies, similar follow-up data are available for 219 and 424 long-term residential (LTR) women, respectively (Greenfield et al., 2004).

The findings reported here for DATOS and NTIES were extracted from the studies public-use data files. The overall percentages of former LTR clients who reported no drug or alcohol use from discharge to the follow-up interview varied across the three studies. In the RWC/PPW study, it was 60%, while in the six-month DATOS study, it was 51%, in the 12-month DATOS study, it was 46%, and in the NTIES study, it was 40%. It is important to consider the differences in length of stay and various methodological factors

among these studies when interpreting these rates. The varying rates may not have an immediate clear meaning due to these differences (Greenfield et al., 2004).

The study conducted by Drake et al. (2000), explored the effects of clozapine on alcohol and drug use disorders among schizophrenia patients. Clozapine is used to treat individuals with schizophrenia who have failed to respond to previous medications. Patients on clozapine were compared to themselves as controls (on clozapine vs. off clozapine) as well as patients who were not on clozapine (clozapine vs. no clozapine). Total 223 patients with schizophrenia, schizoaffective disorder, or bipolar disorder were selected from seven community mental health centers in New Hampshire to participate in a study. 203 patients completed 3 years in the study between 1989 and 1995 (Drake et al. 1998a).151 patients were diagnosed with DSM-III-R schizophrenia or schizoaffective disorder and were eligible for treatment with clozapine. All research participants were treated in dual-disorder programs at one of the seven participating mental health centers. For drug use disorder, the treatments included medication management, case management, and rehabilitation services. Interventions like substance abuse counseling in individual and group sessions, as well as connection with community substance misuse self-help groups were used for severe mental illness. Participants were randomly assigned for dual disorder treatment. The major difference between these service models was greater integration of outpatient services through assertive community treatment.

Group equivalence (patients taking clozapine vs. patients not on clozapine) was assessed at baseline via *t-tests* and *chi-square* tests. For the analysis of variance (ANOVA) with unstructured variance/covariance was used. Patients referred by clinicians, families, or themselves were evaluated for eligibility. They provided informed consent and were

assessed for substance use and psychiatric symptoms regularly over three years. Clozapine use was monitored through interviews. Group equivalence was checked at the beginning, and within-group differences were assessed for patients who intermittently used clozapine. Clozapine use was treated as a time-varying categorical variable.

The study compared the 29 patients who started clozapine after entering the study and continued until the end with the 118 patients who had no or brief exposure to clozapine. Both groups had similar demographics and primary diagnoses, but women were slightly more likely to receive clozapine. There were no baseline differences in substance abuse variables between the two groups. However, the clozapine group had more severe symptoms related to thought disorders and a trend toward more symptoms related to anergia compared to the non-clozapine group. The results indicated significant improvements in several areas while taking clozapine, including the stage of substance abuse treatment, severity of alcohol abuse, severity of drug abuse, and days of alcohol use, but not days of drug use. The results showed that clozapine had a significant positive impact on all five outcomes: improved stage of substance abuse treatment, decreased severity of alcohol abuse, decreased days of alcohol use, decreased severity of drug abuse and decreased days of drug use. Time effects were also significant for each variable (Drake et al., 2000).

Article published by Tuchman (2010) examines that Substance use was seen as mainly a male issue, but recent research shows significant gender differences in substance-related factors, including epidemiology, social aspects, biological responses, dependence progression, medical consequences, co-occurring disorders, and treatment barriers. Women with substance use disorders often face more obstacles in accessing treatment.

Gender-specific drug use patterns and risk behaviors can contribute to unique medical problems for women, making them more susceptible to HIV. Individual characteristics and treatment approaches can impact outcomes differently based on gender. These differences have important implications for clinical practice, treatment, and research.

The article highlights the importance of understanding gender differences in drug abuse for developing effective treatment interventions. Recent data show an increase in female drug abusers, and studies on sex and gender differences in drug abuse are growing. The article discusses differences in substance abuse epidemiology, biological responses, usage patterns, progression to dependence, medical consequences, co-occurring disorders, victimization history, and treatment barriers for women. These findings have significant implications for treatment programs. Epidemiologic data is super important for understanding the impact of drug abuse on women. The National Survey on Drug Use and Health is a yearly survey that collects data on substance abuse. It helps us to identify differences in drug abuse patterns between men and women. It's a valuable resource for understanding the implications of drug abuse for women (Tuchman, 2010).

The recent data show that an estimated 20.4 million people are currently using illicit drugs. Furthermore, the number of people with substance dependence is 22.6 million in 2006. Adult men more likely than adult women to be current illicit substance abusers (10.5% vs. 6.2%) except prescription medications), alcohol users (65.9% vs. 57.9%), and tobacco users (36.4% vs. 23.3%). Though, men and women had similar rates of past month use of stimulants (0.5% for Both), ecstasy (0.2% for both), sedatives (0.1 and 0.2%, respectively), oxyContin (0.1% for both), LSD (0.1 and less than 0.1%, respectively), and PCP (less than 0.1% for both). These statistics are eye-opening that among pregnant

women aged 15 to 44, the rates of alcohol use, binge drinking, and heavy drinking are significantly lower compared to nonpregnant women in the same age group. And it's also notable that among those aged 50 and older, men are more likely than women to have drug dependency or abuse issues. Alcoholism and prescription drug abuse are the top concerns for older women. It is important to raise awareness about these issues and provide support for those in need (Tuchman, 2010).

Women and men have different effects from nicotine. Women smoke lighter cigarettes, fewer per day, and inhale less. Females experience greater mood changes with smoking and during abstinence. Women who drink alcohol may experience more severe health consequences than men, including liver cirrhosis and increased risk of breast cancer and heart disease. Women who abuse alcohol have higher death rates compared to men with similar drinking patterns. Women are also more vulnerable to HIV infection due to gender-specific drug use patterns and risky behaviors. Approximately 26% of reported adult AIDS cases in the US are among women, with high-risk heterosexual contact and injection drug use being the main sources of transmission. Women with SUD often have co-occurring psychiatric disorders like depression, social phobia, PTSD, and eating disorders. Depression rates are higher among women who are poor, less educated, welfare-dependent, and unemployed. Depression can play a dual role in women's drinking behavior. Substance abuse and victimization are significant issues for women. Studies have shown that women in drug treatment have higher rates of intimate partner violence compared to non-drug using women in the community. These rates can range from 25% to 57%, which is much higher than the prevalence rates in the general population. It is important to note that interpersonal stress and conflicts in relationships can be major

triggers for relapse among women in drug treatment. Intimate partner violence can also contribute to continued drug use and relapse (Tuchman, 2010).

Substance abusing women may face challenges during menopause due to factors like alcohol, smoking, medical conditions, HIV/AIDS, limited resources, and negative life events. The rate of HIV infection among midlife women has increased, often linked to drug use and risky sexual behavior. Women are underrepresented in substance abuse treatment programs, with only 30% of admissions being women. Research shows that women seek treatment less often than men due to barriers like pregnancy, lack of services, fear of custody loss, and childcare challenges. Men often enter treatment through employers or the justice system, while women often get referred by social agencies. Women seeking treatment often have more severe substance-related problems than men. They may face challenges like transportation, inadequate insurance, poverty, dealing with a drug-abusing partner, and lack of support in treatment. Some studies show that women stay in treatment longer and are less likely to drop out compared to men. Women's drug use presents unique challenges compared to those of men. Certain groups of women require specialized services. The progression of drug involvement may differ between men and women. More research is needed to understand the reasons behind these differences (Tuchman, 2010).

Comorbidity is another issue of mental health and its very common among drug addiction. Frequency of mental illness is high with drug abuse. Substance abuse is linked with suicidal behaviors especially the abuse of cocaine triggers suicidal risks among the users. Somehow underlying mental illness can trigger drug abuse. So, the common contributing factor among drug addiction and comorbid mental illness is stress because of common predisposition shared in drug addiction and mental illness. For instance, in post-

traumatic stress disorder (PTSD) stress is prominent contributing factor which triggers the disorder. Researchers found that PTSD and drug abuse are linked, and drugs are used to temporarily subside the symptoms of disorder. Hence, other than stress sensitization and conditioning are other contributing factors linked with drug abuse and PTSD such as people are sensitive to stress and more susceptible towards drug taking which further enhanced the positive effect of reward of drug as conditional response. Drugs has a role in triggering psychosis in those without having the history of psychiatric illness. Thought is that the stimulant drugs trigger psychosis and there is excess of dopamine concentration in the brain. Additionally, individuals with history of methamphetamine abuse still have symptoms of psychosis however, they have loss of dopamine transporters in brain (Volkow, 2001).

Community Reinforcement Approach (CRA)

Meyers et al. (2011) described the theoretical foundations that CRA admits the powerful role of environmental contingencies in encouraging and discouraging drug use and CRA attempts to rearrange those contingencies so that sober behaviors become more rewarding than using behaviors. So, this is the basic assumption of CRA in which techniques of operant model of learning blend with a social systems approach. Overall, philosophy is that using community to reward non-using behaviors so that the individual can make healthy life-style change.

There was no evidence-based treatment for drug addiction and clinicians were not aware of effective treatments for substance abuse. Somehow, they think that they are using scientifically supported treatment, but they are not. These are the obstacles in treating drugs related problems and preventing the relapse. Therefore, Community Reinforcement

Approach (CRA) is based on public health model, originally developed to treat alcoholism. It has been used for treatment of many drugs since last 35 years. CRA has proven efficacy for the treatment of alcohol and other drugs (Miller et al., 1999).

Traditionally, CRA is individual and context specific which enables therapists to analyze interactions between individuals and those in their environments. CRA focuses on environmental reality so that each individual can have the exact view of his or her social environment and teaches individuals how and when to use these techniques to get optimum outcome. Therapists of CRA teach the individual how to build on their reinforcers and how to use community-based resources to promote positive change along with building up effective social support (Godley, 2001).

The theoretical framework of CRA is very simple. It's based on B. F. Skinner's model of operant conditioning in which reinforcement or punishment is the core in strengthening or weakening of a behavior. In CRA, it uses reinforcement to rearrange the person's life in a way that abstinence becomes more rewarding than drugs or alcohol use. Drinking or other drugs reinforce one's behavior to continue the use of drugs because they are highly reinforcing. So, the effect of drugs reinforces or motivates the user to continue until they can develop alcohol or drugs related dependence (Miller et al., 1999).

CRA has two major goals:

- Abolition or discouragement of positive reinforcement for drug use
- Encouragement or enhancement of positive reinforcement for sobriety (Drug free productive lifestyle) (Miller et al., 1999).

It uses social, familial, recreational, and vocational reinforcements to deal with drug related problems of clients. Most of the treatment programs focus on individuals and

disease as the problem in drug addiction, but they ignore potentially important environmental determinants. In CRA, these environmental determinants are important while planning the treatment related interventions. So, it has proven efficacy in the treatment of inpatient and outpatient setting (Khalily, 2008a).

CRA has an effective and collaborative process which encourages significant others to take active part in the treatment of their loved one. Building motivation for change is the first step in CRA that can be achieved through empathetic motivational interviewing style, for the identification of positive reinforcers that could be effective incentives to encourage change. Furthermore, therapists in CRA review current and future related negative consequences of drug addiction to prevent them in client's immediate environment (Miller et al., 1999). A thorough functional analysis of client's drug using behaviors is another important component of CRA that enables the therapist to devise an individualized treatment, and it also helps the client to identify such situations in which drug use is most likely to occur, along with those positive consequences which can reinforce drug use. Moreover, drug use is linked with increased isolation because of active drug addiction. Their activities limit to drug related things such as using drugs, managing, or accessing drugs which consume most of the time. So, they become isolated from positive prosocial activities such as hobbies, sports, and social involvement. Social and recreational counselling is used to help the client to identify positive activities to fill the free time positively so that free time could not be further used as previously with drug usage (Miller et al., 1999).

CRA is a program used for treating problems caused by substance abuse. The belief of the program is that it can play a positive role in discouraging drug use and drinking

behavior and at the same time, it focuses on those reinforcers which encourage prosocial behaviors (non-drinking or drug free lifestyle). The aim is to change as many aspects as possible of an individual's "Community" life so that they can live a sober life. In this treatment plan, there is a lot of focus given on the life of the individual. Behavioral training is provided to the individual in areas of problem-solving skills, drink or drug refusal training, and communication skills (Smith et al., 2001).

CRA has been greatly tested for the treatment of alcoholism for decades to establish its evidence-based efficacy. The philosophy of CRA is quite simple. For treatment of alcohol or other illicit drugs the mere thing is to rearrange the person's activities so that sobriety becomes more rewarding than the drinking. Here are some defining features of CRA to quit drugs, it goes with two major goals such as

i. To eradicate the positive reinforcement for drinking.
ii. To enhance the positive reinforcement for sobriety.

For the achievement of the above goals, CRA therapists use different treatment strategies such as enhancing motivation to stop drinking, initiating sobriety sampling, performing functional analysis, learning communication skills, increasing positive reinforcement through different measures, practicing new coping skills and involving significant others in treatment. More-over the therapist style and treatment intensity can also effective the outcome (Meyers et al., 2011).

Building motivation in CRA is vital for treatment adherence. So, the first step is to explore client's motivation for change. Initially, identification of positive reinforcement was the effective incentive for the client to change behavior. CRA therapists also review the current and future negative consequences of drinking such as asking clients about the

inconvenient events due to drug taking or drinking alcohol. Client then checks the current negative consequences that can apply to their present situations and those which can occur in future. This assessment can be carried out in an empathetic motivational interviewing style rather than confrontational way. Indeed, CRA encourages the client to see the advantages of sobriety and to forecast the disadvantages of drinking rather than to enable therapist to do everything for client.

Another protocol is to initiate sobriety. After identification of these factors for ensuring change, therapist moves to ensure abstinence. Most clients find it difficult to go through immediate total and permanent abstinence. So, they cannot commit to do so, for this purpose, a process named sobriety sampling can be effective. In which trial-based abstinence will be negotiated with client through counselling strategies. According to Meyers and colleagues (2011), clients who get the freedom to tailor abstinence trial with negotiation are more likely to stay abstained from drugs as compared to those who are given the forced prescription for abstinence.

For analyzing drinking patterns, CRA uses detailed functional analysis to identify those situations in which drinking is most likely to occur as well as the positive consequences of alcohol which may have reinforced drinking in the past. It is important for individualizing the treatment and specifying the treatment components for particular clients. After completing the drinking or drug related patterns, therapists and clients choose appropriate modules from treatment menu and these modules are non-drinking related activities to increase positive reinforcement for client. So, clients are more into drinking behaviors and the non-drinking activities narrow down because of active involvement in drugs. So, acting upon and exploring pro social activities which are not drug related have

positive impact on clients. In behavioral rehearsal, therapists not only talk about new behaviors, but they involve clients to practice coping skills such as interpersonal communications. Another important factor in CRA is to change clients' social environment so it involves significant others, those persons who live with the addict because they are really important to identify the social context and in supporting change in behavior (Meyers et al., 2011).

Some factors which are related to the treatment delivery can influence the effectiveness of CRA and patient's outcome. The first one is therapist style. The optimal style of the therapists consists of positiveness, support, energy, optimism, and enthusiasm. Every single bit of progress made by the clients is recognized and praised by therapists. The second factor influencing treatment outcome is the jump start feature of CRA in initial treatment intensity. There is no need to make a waiting list for client to start the treatment, client can start the treatment any time whenever he or she is ready for. Moreover, counselling sessions may be scheduled more frequently in the initial phase. It involves procedures to ensure abstinence immediately (Meyers et al., 2011).

There were three meta-analytic reviews conducted by Smith et al. (2001), they reported that CRA is the most cost-effective and efficient treatment, and in terms of methodological quality CRA is great treatment protocol for the treatment of SUD. Out of 33 treatments CRA proved to be superior to any other intervention during the follow up period. Finally, CRA showed effectiveness in terms of significant effect as a treatment protocol (Smith et al., 2001). The effectiveness of CRA was also mentioned in various studies explained in the following text.

Inpatient Studies

CRA was first used 25 years ago. A matched control design was conducted by Hunt and Azrin (1973). According to the authors alcohol dependent individuals were selected randomly and assigned to each of eight conditions of CRA. The other individuals included were from standard Alcoholics Anonymous (Wright et al.) program. CRA participants were educated according to the CRA protocol along with job and leisure counseling was also provided. During home visits relapse prevention and behavioral couple therapy for married individuals was also provided. Outcome assessment was conducted after six moth follow-up which shows drinking was 14% in CRA participants, while in standard treatment group drinking was 79%. Furthermore, the hospitalization rate was two percents in CRA participants during follow-up days as compared to 27% in standard treatment.

A second study was also conducted by Azrin which was the extension of his first study. In this study the standard treatment participants were also encouraged to take disulfiram in the second study. But in new CRA programs a new update was introduced in which compliance program was introduced to check the compliance of participants to take disulfiram. Secondly, the early warning system to identify early signs of potential relapse to prevent it and buddy system for social support was also included in this update. Results showed great outcome in 6-month follow-up. Alcohol drinking in CRA was two percent as compared to 55% in standard treatment during follow-up days. Similarly, there was no hospitalization among CRA participants. In the standard treatment group 45% individuals were institutionalized (Smith et al., 2001).

Outpatient Study

In the 1980s, the first outpatient trial was conducted by Azrin and colleagues. The objectives of the trial were to contrast the previously introduced disulfiram compliance program with the traditional method of disulfiram. In sample, 14 participants were randomly assigned to traditional treatment, 15 participants to disulfiram compliance and 14 participants were randomly assigned to CRA disulfiram compliance. Traditional treatment included 12-step counseling and a prescription of disulfiram. But in disulfiram compliance condition received same basic program along with compliance procedure to take disulfiram and its monitoring. The third condition, CRA compliance condition consists of CRA program along with drink refusal, relaxation and sobriety sampling. Findings showed that the conditions with disulfiram compliance program predicted high abstinence rate. Highest abstinence rates were found as 74% of the days during the sixth month. While in CRA disulfiram compliance group the abstinence rate was 97% (Smith et al., 2001).

Large Outpatient Study

A large study with the sample size of 237 patients was conducted by Miller and colleagues at the University of New Mexico's Center on Alcoholism, Substance Abuse and Addictions (CASAA). This research was mainly the replication and extension of Azrin's work as mentioned above. It addressed many methodological limitations of the early CRA research. First three were replications of the first outpatients' study. A fourth condition was added CRA without disulfiram which was a main part of the CRA package 12 sessions were done for all treatments. Result for those in the first four conditions showed that CRA conditions outperformed the traditional group in terms of the drinking variables. Drinking

days for CRA individuals was three percents and for the traditional treatment it was 19%. No Significant treatment differences were detected during follow ups in 12 and 18 months. Although dropout rates were higher in the traditional treatment (41%) compared to CRA (9%). Findings reported that CRA was superior to traditional treatment in terms of drinking outcomes. Secondly, when disulfiram compliance training was added to traditional treatment. It was similar to the CRA condition (Smith et al., 2001).

Homeless Population Study

Another research was conducted in reference to CRA but this time Smith et al. (1998) took homeless alcohol dependent population. All participants were recruited from a day shelter. They randomly assigned 106 patients (91 men and 15 women) for behavioral intervention: either to CRA or standard treatment of the day shelter. At this time, they did a modification in CRA, and they did intervention in a group format along with small incentives for attending the group. They used project nurse to monitor disulfiram and offered independent living skills groups for better accommodation for the homeless population. During a 12-month period the average number of daily drinks dropped from 19.0 at pretreatment to 3.8. The individuals in the CRA group outperformed those in the standard condition. There were overall improvements in employment of the participants.

Cocaine Studies

In the management of cocaine dependent individuals, a program was introduced in which CRA was combined with contingency management. So, in this program vouchers were given to individuals with clean urine. These vouchers could be exchanged from material goals and would increase in value as the days of continuous abstinence build. In CRA program financial reinforcers were added for cocaine dependent individuals. In a

randomized study of cocaine trial 38 cocaine dependent outpatients were randomly assigned to either CRA based behavioral treatment or drug abuse counselling. Findings suggested that 58% of CRA voucher subjects completed 24 weeks of CRA treatment as compared to 11% in drug abuse counselling group. Moreover, according to the abstinence from cocaine, CRA based group 68% subjects demonstrated abstinence for eight weeks and 42% subjects for 16 weeks. While in standard counseling only 11% of subjects abstained for eight weeks and five percents for 16 weeks (Higgins et al., 1993).

Opiate Studies

Psychosocial intervention combined with pharma co-therapies showed effectiveness in treating opiate addiction. Bickel et al. (1997) conducted a study. They recruited 39 opioid-dependent patients with a mean age of 34.1 years. In this sample, 25 males and 14 females' patients were recruited for this 26-week outpatient study. So, the individuals undergoing buprenorphine detoxification were randomly assigned to either standard drug counseling or CRA voucher condition. Hence, results were significant in terms of opioid abstinence and 53% participants from CRA voucher program completed the 24-week detoxification program as compared to standard counseling which was 20%.

Another study was conducted in which efficacy of CRA in comparison with standard counseling was studied in opiate-dependent patients on methadone maintenance. So, a sample of 180 individuals were randomly assigned to three conditions: standard counselling, CRA and CRA with relapse prevention (Abbott et al., 1998). Authors found that participants assigned to the CRA conditions (with or without additional relapse presentation training) 89% of subjects achieved three weeks of continuous abstinence, while in standard drug counselling it was 78%. Furthermore, there was significantly greater

improvement in CRA groups on Addiction Severity Index drug composite score as compared to standard counseling condition.

Recently, a clinical trial was conducted in Pakistan, where CRA was indigenously adapted by Khalily et al. (2023). In this study, an adapted treatment approach called IA-CRA, was utilized to help people in Pakistan to reduce cannabis use and improve their mental well-being. The approach showed high rates of abstinence and positive effects on depressive and anxiety symptoms. These benefits lasted for at least 36 weeks after the treatment. Overall, it's a promising approach for addressing cannabis misuse.

This study mentioned a 6-week trial where participants who met the criteria for cannabis abuse were randomly assigned to either receive six weekly sessions of IA-CRA or TAU. It took place in Islamabad over a 2-year period, starting in December 2019. The study had ethical approval, and the staff received training in clinical trial management and good clinical practice. In Treatment as Usual (TAU) group, patients received routine care for mental health and substance use disorders. They had input from a psychologist on a weekly basis, which included psychoeducation and motivation. However, TAU did not include any aspects of the Community Reinforcement Approach (CRA). The focus for both the IA-CRA and TAU groups initially was on supporting individuals, self-care, adherence to daily routines, and detoxification. The TAU group then received a comprehensive addiction recovery program that involved counseling in group settings, educational presentations based on the Minnesota model, and elements from the twelve steps Alcohol Anonymous Program and "The Seven Habits of Highly Effective People" for habit formation.

The study recruited participants from universities and hospitals in Islamabad, Pakistan. They were included if they scored >2 on the Cannabis Abuse Screening Test (CAST) instrument, age range should be 18 to 30, demonstrated the ability to understand the study well, and could provide written consent. Individuals fulfilling the diagnostic criteria of DSM-5 mental disorders or poly-substance (misuse of psychoactive substances including alcohol) use were excluded, as well as those who had transportation difficulties to engage in on site study procedures.

In the treatment group, participants had six one-on-one sessions every week for an hour. Treatment providers were qualified psychologists who had experience treating adults with substance use. The psychologist received supervision from a senior psychologist who having intensive 20 years of experience in therapy. One on one supervisory sessions were also conducted weekly by senior psychologist to help the psychologist's delivering intervention to understanding the case, setting goals, progress evaluation, attaining desired goals, and addressing any challenges that came up during the sessions. If the participants felt distress or mentioned suicidal ideation such as having thoughts of hurting themselves, their clinical team was informed about the situation and contacted to insure support.

It shows that IA-CRA is effective in helping people with cannabis use disorders. It not only reduces cannabis use but also improves mental well-being by reducing symptoms of depression, anxiety, and stress. Addressing both substance use, and mental health is important for comprehensive treatment. IA-CRA could be a great intervention for this population. The study found that a type of treatment called IA-CRA can help people with cannabis use problems. It not only reduces cannabis use but also improves mental well-being by reducing symptoms of depression, anxiety, and stress. Hence IA-CRA has

positive effects on mental health as well. The durability of the treatment effects was also significant for sustained recovery and highlighted through 36 weeks follow up. The study had some limitations, like focusing on a younger population and using self-report measures. Future studies could include a wider range of people and use different treatment methods. Overall, the findings show that IA-CRA is a promising intervention for cannabis use disorders (Khalily et al., 2023).

Role of Religiosity in Substance Use Disorder

In research conducted by Gmel et al. (2013) defined religiosity as being connection with public realm of membership in "a religious institution with an official denominational system of beliefs, rituals, practices, and community, oriented toward the sacred". They reported that the private connection with God is something different and is known as spirituality. It also includes individuals' beliefs and practices for establishing or maintaining the connection with God. Gmel et al. (2013) concluded that spirituality is also the part of many religions and larger part of religious participation.

Palamar et al. (2014) mentioned that religiosity is defined as multidimensional construct and they highlighted three facets of religiosity such as religious affiliation, degree of integration or religious attendance, and salience or importance of religion in one's life. Religious affiliation is one's identity and internalization with religious norms, and it is shown as a protective factor for risky behaviors such as illicit drug use among adolescents. Similarly, another aspect of religiosity is the attendance of religious services which shows degree of integration with religious networks. Religious attendance represents time spent in the house of worship and with religious teachings. Religious attendance is associated as a strong protective factor against substance used, it has inverse relationship with drug use.

Finally, one's personal religious importance is also an indicator for protective factor against substance abuse.

Thomas (2021) reported religiosity as a combination of beliefs, affiliation and practice. Hence beliefs enable the persons to perceive this world and act according to what is permissible and what is considered as immoral such as using drugs. Affiliation considered as one's involvement in religion and how is that impact the behaviors of the individual and its impact on their community. Practice is the carrying out the religious activities which includes private and public level of engagement such as praying and attending service.

Religiosity as a Protective Factor Against Drug Use

Thomas (2021) reported the findings of qualitative and quantitative studies to explain the effects of internal and external religiosity on drug abuse. The study data was accessed from the 2014 National Survey on Drug Use and Health (NSDUH). Sample was based on 55271 respondents; age was over 18 years. The percentage of male respondents was 47% and 53% represent female respondents in the study. The independent variable in the study was religiosity, it includes the frequency of religious service attendance, importance of religious beliefs, and influence of religious beliefs on one's decision-making. Similarly, the dependent variable was drug use which includes three drugs type such as marijuana/hashish, cocaine, and heroin based on their frequency of use.

Results of the study showed that marijuana or hashish use was reported by 25% of the respondents who have used it in their life also used in last 30 days, similarly cocaine was five percents and heroin use was reported by 12% of the respondents and also used in last 30 days. Moreover, results suggested that 23% of the respondents attend religious places frequently, 68.7% replied that they agree or strongly agree that their religious beliefs

are important, and 68.7% respondents replied that their religious beliefs influence their decisions. The relationship between marijuana use and frequency of attendance, so the relationship was significant among the marijuana use was reported among those who were infrequent attendees however the use of marijuana was not reported by those who were frequent attendees. Similarly, the use of cocaine was also reported among those who were infrequent attendees, and no use was reported among frequent attendees, this relationship was also highly significant. Similar results were also found in relationship with heroin use. So, the use of marijuana, cocaine and heroin was not reported by frequent attendees and this relationship was significant (Thomas, 2021).

Thomas (2021) also reported the relationship of drug use (marijuana, cocaine and heroin) in the last 30 days among infrequent and frequent attendees of the religious service. The marijuana use in infrequent attendees was 25% and among frequent attendees it was 10.6%. Similarly, the more infrequent attendees had used cocaine in the last 30 days as compared to frequent attendees. These results were significant at $p < 0.001$. Moreover, the relationship was again significant with importance of one's religious beliefs and ever use of marijuana, cocaine and heroin in life. The respondents who disagree with the statement "my religious beliefs are very important to me" had used in contrast to those who agree to the statement. Results were also same for drug use in past 30 days but excluding heroin with respect to importance of one's religious beliefs.

Finally, the relationship between ever use of marijuana or hashish, cocaine and heroin and the statement, "my religious beliefs influence my decisions." was also significant at $p < 0.001$. hence, the respondents who disagreed with statement had used these drug as compared to those who agreed to the statement. Furthermore, the relationship

was also significant in term of marijuana or hashish and cocaine used in last 30 days with those who disagreed to the statement had used in last 30 days as contrast to those who agreed. However, the results were non-significant in the case of heroin use in last 30 days irrespective to agreeing or disagreeing to the statement. Logistic regression models were also considered while predicting the interaction of drug used in term of religiosity. Results indicated that religious service attendance, the importance of one's beliefs, and influence of one's beliefs significantly predict the ever use of marijuana or hashish and cocaine. In case of ever use of heroin the religious service attendance and the importance of one's beliefs were significantly predicted this relationship. Conclusively, the study conducted by Thomas (2021) confirmed that both private and public religiosity operated as protective factors against drug use.

The study conducted by Al-Omari et al. (2015) examined that how religion helps Jordanians in recovery from alcohol and substance abuse. Participants shared their thoughts, and the study found that religion plays a positive role in the recovery process and can protect against future substance abuse. Drug and alcohol abuse is a worldwide phenomenon that is not limited to specific culture or religion. According to the World Health Organization Global Information System on Alcohol and Health report (Al-Omari et al., 2015) stated that harmful use of alcohol results in the death of 2.5 million people annually worldwide. Furthermore, 230 million people, or one in 20 adults, are estimated to have used an illicit drug at least once in 2010, and more than 15.3 million persons have drug use disorders.

As drug use is increasing in Jordan, despite conservative Islamic values. Limited research exists on the connection between religion and substance abuse. The study looked

at how religion helps people in Jordan recover from alcohol and substance abuse. They interviewed people and analyzed their answers to understand the role of religion in their recovery. It is interesting to see how religion can play a part in overcoming addiction. They asked 146 people in treatment centers about the role of religion and religious men in their recovery through qualitative research design. A structured interview with open-ended questions was carried out. They wanted to know in the interview if religion is important, if religious commitment helps with recovery, and if there is anything else they wanted to add about religion.

They asked people from two treatment centers in Jordan, one run by the police and the other by the Ministry of Health. These centers help patients with alcohol and substance abuse from different backgrounds. The study got approval from the University of Jordan and the centers' committees. Participants were recruited from two treatment facilities; one was the Antinarcotics Society Center (ASC) and the second was the National Center for Substance Abuse Rehabilitation (NCSAR). They talked to people in Jordan who were getting treatment for alcohol or drug problems. The participants had to be Jordanian citizens, 18 or older, able to speak Arabic, and not having memory or thinking problems. A trained research assistant collected data for six months. They explained the study and got consent from those who wanted to take part in the study.

Demographic details of the participants were reported in result section, 97% of the participants were male and 99% were Muslims. Once the interviews were transcribed, three researchers analyzed them separately and identified themes. Then, they had a meeting to agree on the themes. Two themes were identified through data which were role of religion and role of religious men. The role of religion appeared as an important theme in this study.

Four subthemes were described by participants for role of religion. The subthemes were described as: religion as a peace of mind, religion as a new beginning, religion as a protector, and religion as encouraging and increasing motivation (Al-Omari et al., 2015). Moreover, three subthemes were also identified under the theme of role of religious men such as religious men's perception of substance users, being judgmental, and religious men's approach.

Even though most participants in the study are Muslims who know that Islam doesn't allow alcohol and drug use, more than half of them still use them. This shows that some participants aren't following their religion and may be at risk for substance abuse. Religion can help protect against substance abuse. In this study, religious men played a role in the treatment and recovery of alcohol and substance use. However, participants were concerned about how the religious men approached them. It's important for religious treatment interventions to have a welcoming approach, as it helps addicted individuals regain respect, dignity, and self-esteem. Many participants expressed a desire to participate in religious activities and would like the support of religious men in this process.

The study found that even though most participants are aware that their religion (Islam) prohibits alcohol and drug abuse, more than 50% of them still use them. This suggests that some people may not follow their religious teachings when it comes to substance abuse. People in the study wanted religious men to help with their recovery, but they were worried about their attitude. Religious men should be friendly and supportive to help them feel respected and rejoin society. Sounds like a great idea! Including religious activities in treatment can be helpful for recovery. Having a mosque in the centers would allow participants to pray, attend classes, and strengthen their attachment to their religion.

Collaborating with healthcare professionals and religious leaders is key. Since the data for this study was limited, further qualitative studies are needed to gain more insight into the role of religion in alcohol and substance recovery. It is also important to consider that most of the samples were Muslim males, so we should be cautious when generalizing the results to females and individuals of different religions (Al-Omari et al., 2015).

Ali et al. (2022) conducted research on the role of religion in prevention for drug addiction in Sawat Pakistan. This study explores how religion can help prevent drug addiction. It looks at people's beliefs, their level of religiousness, and the role of spirituality in recovery. The study was conducted in Swat, Pakistan; with a sample size of 375 people. The data was analyzed using statistical methods. Overall, it is about understanding how religion can be a barrier to drug addiction.

Research shows that religiosity is associated with happiness, a sense of belonging, and finding meaning in life. It also connects people with moral values and promotes positive social behavior. Spirituality plays a role in patient care, as recognized by the joint commission on health care delivery. Many Americans have faith in religion, and they believe it helps prevent wrongdoing. Alternative medicine and spirituality are recognized for their role in healing. Studies show that some people who do not consider themselves religious may be more prone to alcohol and drug use. Understanding beliefs is important in addressing drug use and to promote recovery from drugs. A world popular Muslim psychologist Malik Badri views that a large number of Muslims who are prohibiting drugs and alcohols are because of their religiosity. Furthermore, taking drugs is a sin in the religion and it claims that those who become an addict is a sin. The Holy Quran has

prohibited all kinds of intoxicants in Islamic society. The Quran prohibits alcohol for entertainment purposes as well (Ali et al., 2022).

In the study, 375 participants were selected for the research from 6000 of the population of illicit drug users (e.g., heroin, methamphetamine, cannabis). Religiosity was considered as an independent variable against the prevention of drug addiction which was a dependent variable in the study. Results showed the percentages related to the question about their lifestyle, 67% of the respondents agreed to the statement and they shared that they were living according to their own will, and 69% responded to have little knowledge about religion. Moreover, 64% of the participants believed that drug use is a sin, and the person will be punished for it and 63% reviewed that drugs are strictly prohibited in the holy religion Islam. Similarly, 72% of the respondents reported that spiritual healing has a role in the rehabilitation from drug addiction and 65% of them reported that strong religious belief and practice is directly linked with drug prevention. Moreover, 69% of the respondents also rated that strong religious believers and practitioners are the barriers against drug addiction as well as drugs spread.

Ali et al. (2022) also mentioned the association of religiosity with drug prevention and effects of drug addiction on other family members. So, religion is the guide for beliefs and practices, and religion further directs the actions of human beings. Religion also promotes the benefits and prohibits mankind from evil. Results showed that knowing about religion, similarity of religiousness regarding drugs, and punishment permission from religious side was also found significant. The statement that the drugs are strictly prohibited in Islam was highly significant. The present study was conducted to examine the role of religiosity in substance use disorder and it was found that use of any illicit substance is

strictly prohibited in religion, and it has high significance in positive direction. When role of religion was assessed with age while controlling the age, it was found that age group of 17-24 have high correlation and age group of 35-32 has weak correlation and the age group of above 40 has highly significant relationship between religion and substance use.

The study conducted by Ghuman and Hoque (2015) found that religious beliefs influenced substance use among South African youth. Students who considered themselves very religious had lower odds of substance use compared to non-religious students. This suggests that religion plays a role in promoting healthier behaviors. This study wanted to see if there is a connection between the religious belief of young people, their alcohol abuse and drug use. They found that being more religious was linked to lower substance use among South African teens. They did a survey among 16 to 18-year-old teens from five high schools in the Emaweleni District of KwaZulu-Natal in 2007. It was a cross-sectional study, which means they collected data at one point in time.

Out of the 1,227 students asked, 887 (66%) gave their consent and participated in the study. The questionnaires of the study, which took 45 minutes to complete, were directly given to the researcher. Before the collection of data, they had taken permission from the principals and educators at each school. January to April 2007 was the time window for conducting this study.

The questionnaire data was analyzed using Excel and SPSS. Descriptive statistics summarized the results, and tests like chi-square and logistic regression were used to find out associations. A significant level of $p<0.05$ was used. In this study, 704 participants took part in the research with 57.4% of their response rate. Among the participants, 59.8% were female. The study included individuals from different ethnic backgrounds, with 46.2%

African, 27.8% Indian, and 26% White. The primary languages spoken were English (45.0%), Zulu (43.8%), Afrikaans (9.1%), and others (2.1%). The religious representation consisted of Christian (77.8%), Hindu (17.8%), Muslim (1.7%), Jewish (0.3%), and others (0.3%). When it comes to religiosity, 36.6% considered themselves very religious, 57.2% somewhat religious, and 6.1% were not religious at all. There were various factors contributing to more girls considering themselves very religious, such as religious socialization being more common among girls or boys being less likely to follow their parents' religious beliefs. Studies by Regnerus and Burdette (2006), and Lees and Horwath (2009) have further explored these reasons.

Rationale of the Study

In Pakistan, the SUD or drug addiction is the most alarming situation, and its treatment is another challenge for mental health professionals. Substance use was highly prevalent in Pakistan, and it was surveyed between the age cohort 15 years to 64 years. Pakistan is a country where the majority of the population is youth. So, substance use is more prevalent among those aged between 25 years to 39 as compared to 15-24. According to the gender the substance use is more common and at high level among males than females. According to the report, dependence and severity of dependence among substance users was common, among the 6.7 million substance users, 4.25 million were considered as drug dependent. Hence, these drug dependents were in overwhelming need for treatment. Whoever, harm caused by drug dependence also calling for effective intervention in term of preventing HIV and blood borne diseases which were also prevailing among substance users who are injecting substances (Abbasi & Muhammad, 2022; Asif et al., 2023; Riaz & Sahar, 2019; UNODC, 2013).

High relapse among the drug addicts commonly exists and availability of effective treatment strategies in Pakistan is also compromised. There are different types of treatment facilities throughout Pakistan such as drop-in centre, government treatment centre, government hospital, drug treatment and rehabilitation (NGO) and private treatment centre which are providing treatment for drug addicts. According to UNODC (2013) report on drug use in Pakistan, the perception of key informants was evaluated regarding the quality of drug treatment services in treatment facilities in Pakistan. The report manifested that effectiveness of services for client in generating favorable outcome in terms of health and quality of life in drop-in centre was 27%, in government treatment centre was 20%, in government hospital was 15%, in drug treatment and rehabilitation (NGO) was 22% and in private treatment centre was 32%. Hence, the need for an evidence-based approach for SUD to enhance recovery and effective relapse prevention are challenges for mental health practitioners (Malik & Sarfaraz, 2011; Cami & Farré, 2003; Khalid et al., 2024).

So, the aims of the present study, primarily to adapt a treatment strategy which has robust treatment outcome and supported evidence. For the purpose CRA was selected because of its efficacy, an evidence-based efficient and cost-effective treatment approach. Various studies were conducted in past to check the effectiveness of CRA these studies are based on inpatient studies, outpatient studies, homeless population, opiates and cocaine studies (Smith et al., 2001; Smith et al., 1998; Higgins et al., 1993; Abbott et al., 1998). After the adaptation of the treatment model CRA, a clinical trial was conducted to determine the efficacy of the adapted model. However, the rehabilitation for SUD in Pakistan mostly utilizing disease model as a treatment strategy, which lacks the structured treatment interventions, strategies based on disease model focus on bringing change in

individual while ignoring potential environmental and familial determinants associated with SUD as well as there was no evidenced based approach in the rehabilitation programs for addicts in Pakistan that can claim its effectiveness with supported evidence (Khalid et al., 2024; Riaz & Sahar, 2019). Hence, in the present study, CRA was adapted according in the milieu of Pakistani culture and values in order to make it best fitted approach for the individuals having addiction problem. CRA is an evidenced based treatment for substance dependence which focuses on the environmental contingencies to discourage substance use and alternatively to encourage prosocial behaviors instead. It is based on the philosophy of operant conditioning principle to promote those aspects factors which enhance recovery process and prevent or minimize relapse.

Another important issue with SUD is the comorbid mental disorders which are common and tightly associated with it such as stress, anxiety, psychosis, depression, and bipolar disorders. Prevalence of associated comorbidities was reported among drug addicts is 27% and most commonly co-existing disorders are stress, negative mood, suicidal ideation, psychosis, and bipolar disorders (Batool et al., 2017; Lagisetty et al., 2017; Park & Kim, 2015). The present study aims to treat those with comorbid mental disorders having addiction as a principal diagnosis.

Plan of Studies

This thesis is based on three studies whoever, study I is based on the need assessment of the evidence-based treatment which was based on qualitative research method with objective to explore the challenges and strategies of the disease model. need assessment and unfreezing stage considered in the study. Study II is conducted on translation and validation of ARQ using forward, backward translation and committee approach to select the appropriate translation. Urdu version of ARQ (ARQ-U) was generated through this process and psychometrics were also established in the study. Study III is based on the clinical trial of the adapted version of CRA intervention which is known as Islamically integrated Community Reinforcement Approach (IRCA) on experimental and Treatment as Usual (TAU) based on disease model on control group.

Study I

Need Assessment for Treatment Model

The disease model of addiction explains as specific brain disease which involves neurological adaptations caused by chronic drug use or alcohol use that can lead loss of control over the use (Pickard et al., 2015). Most of the rehabs in Pakistan are claiming that they are using disease model, but it was observed that they are lacking from scheduled treatment of 90 to 120 days. The focus of the disease model is on individual, but they are overlooking the other aspects such as role of family, and society in the onset, development and treatment of substance use disorders. Disease model emphasizes that disease is lying within the individual, but they are ignoring the role of modeling and contingency of the environment.

Objectives

1. To explore the need for evidenced based treatment model for SUD.
2. To identify the challenges, benefits and treatment strategies in disease model.
3. To consider the recommendations for adaptation of comprehensive treatment model.

Sample

In the present study, four participants were selected who were working in the field of drug addiction rehabilitation. Those who were excluded from the study dropped through initial interview because of their lack of expertise with disease model. They all were qualified psychologists, two of them were clinical psychologists having MS in clinical psychology and one has completed advance diploma in clinical psychology, and two were psychologist, one of them was perusing her MS degree in clinical psychology and other has master's degree in psychology. Their experience ranges from three years to twenty

years in the field of residential treatment facility (rehabilitation) for SUD using disease model. There were two males and two were females among participants.

Research design and Procedure

Qualitative research design was used in the present study. In-depth semi structured interviews technique was used for data collection. The interview was based on eight open-ended questions. Question number one was related to demographic information of respondents such as their qualification, experience, and designation. Rest of the questions were related to benefits of disease model, challenges or limitations of the model, respondents' experience with the model, model's effectiveness in SUD, characteristics of comprehensive and effective treatment model, lastly the need for an evidence-based treatment model for SUD.

Thematic analysis was used for generating nodes and themes from the data collected through in-depth interviews. Four independent enumerators were requested to rate the generated themes and their corresponding nodes on a five-point rating scale. Where one is equal to irrelevant and five means most relevant themes. Data was transcribed in English and analyzed through NVIVO-8 for creating themes.

The first phase was considered in the present study as unfreezing stage (Hartzell, 2012) which is defined as dissemination of information to enhance awareness for upcoming change. At this stage the need assessment was explored, and change was considered to be acquired through subsequent stages. Lewin's 3 stages (Hartzell, 2012) for change are unfreezing, change and refreezing were adapted phase wise. The present study explored the need and awareness related to comprehensive and integrated treatment strategy for SUD. In the second stage, CRA was adapted indigenously and Islamically. Third stage was

based on refreezing stage in which the maintenance of change will refreeze after implementing the adapted version of CRA. Feedback of participants was recorded through focused group.

Results

Table 1

Important themes of the study (N=18)

Themes	Verbatims
Benefits of the model	
Relapse prevention	"After discharge from the rehab, patients learn how to prevent relapse."
	"Patients learn how to manage and face their triggers of relapse."
Model is effective	"Of course, this model is effective somehow."
Denial breaking	"It is helpful in breaking denial of the patients."
	"Make them aware of their problem and we give them knowledge which breaks denial."
Challenges of the model	
Awareness of patients and families	"Patients are not aware of the model, but I thought there are some points which lack."
	"The Minnesota model we educate them, they don't know anything."
Family role in treatment	"Pampering the loved one though giving food and comforts and the much concerned about physical health."
	"Families play a passive role in treatment this is a big challenge."

Low recovery rate	"Success ratio is low due to which we are unable to achieve the desired results as a professional."
Difficulty in understanding	"Patients with substance use disorder mostly lack insight."
Lack of training	"Training of this model is not available at any institute in Pakistan."
Model is not evidence based	"In Pakistan the concept of rehab or the model of treatment is not research based."
No treatment for comorbidity	"No, this model works for substance use disorder only because most of the content is related to drug addiction."
Cultural and religious challenges	"It does not go with our values."
	"They report this some stuff from out of the country which you people are following."
Recommendations for model	"1st our religion should be included in it,"
Consideration of religion, values and culture	"See effective and comprehensive model is that which covers all aspects of spiritually."
	"There are some modifications required."
Required modification	"Some more modifications are required."

Breaking denial	"Most of the patients are in the denial so model should help break the denial."
Techniques used in model	"The model we follow is stereotype in which we
Residential treatment	admit patient for indoor treatment."
Detoxification	"First we work on detox." "Initially detox is carried out by medical officer."
Psycho education	"We provide disease concept and educate them about their disease." "We psycho educate patient with seven habits for teenagers."

The above table explains the important themes explored in this study which are based on benefits of the model, challenges of the model, recommendations for model, and techniques used in model. The benefits of the model highlighted that it helps the therapists to break the denial as described by R1 ***"it is helpful in breaking denial of the patients"*** of the patient by developing insight in the patient as narrated by R2 ***"make them aware of their problem and we give them knowledge which breaks denial."***. The model is also effective for relapse prevention and help to manage the relapse triggers as narrated by R1 ***"after discharge from the rehab, patients learn how to prevent relapse."***.

The important challenges observed are lack of awareness of patients and families as reported R2 ***"patients are not aware of the model but I thought there are some points***

which lack" and R4 ***"neither patients nor their families know about this model. Material related to this model is not readily available for them"***. Role of family in treatment is very important but family is not actively engaged in treatment as discussed by R3 ***"the biggest challenge is that family does not want to learn new things"***. It is also reported that this model has a low recovery rate as narrated by R2 ***"success ratio is low due to which we are unable to achieve the desired results as a professional"***. It is important for the patients and families to have a significant level of understanding to grasp the important concepts of disease concept as described by R4 ***"understanding level of your patient".*** It is also discussed that training of this model is lacking as explained by R3 ***"Other than that you can't research because no training is available for any other model"***. It is also found that this model is not evidence based as narrated by R1 "***this model is not evidenced based",*** and R4 ***"in Pakistan the concept rehab or the model of treatment is not research based".*** Practitioners reported that this model does not treat the comorbidities effectively as narrated by R1 ***"no this model work the drug addiction only because most of the content is related to drug addiction",*** R3 ***"it's not working much with psychological disorders other than that it is"*** and R4 ***"no, this treatment model is not dealing these disorders. Definitely drug addicts come with other mental disorders such as psychosis, mania, depression and OCD related symptoms but this model only deals drug addiction and not dealing other related mental disorders"***.

Important recommendations for model explain that it does not consider the religion as narrated by R1 ***"on the base of our religion which is following in our country"*** and R3 ***"see, effective and comprehensive model is that which covers all aspects spiritually, socially we have social norms which are not covered in the old model"***. It also does not

incorporate the values and culture as narrated by R1 ***"incorporating our values, culture and tradition through which we treat patients more effectively"*** and R2 ***"we are going with the flow but there is need of adding societal norms, values"***. This model also requires some modification as explained by R1 ***"some more modifications are required".***

Important techniques highlighted in this model are psychoeducation, which is based on emotional regulation, seven habits, six decision, ten tasks and 12 steps as narrated by R4 ***"then you educate patient about disease concept, and it is based on teacher student relation"***. This model also focuses on detoxification process which illuminates the drugs from the body as narrated by R2 ***"first we work on detox, after detox patients comes out of the influence of the drugs"*** and R3 ***'initially detox is carried out by medical officer"***.

Discussion

The high rate of relapse reported by Kabisa et al. (2021) strongly desires to explore the challenges or failure factors of the widely used disease model for the treatment of SUD. Present research was aimed to explore the need for comprehensive and effective treatment model, and to establish the alternate, evidence-based, culturally and religiously indigenous model for the treatment of SUD.

It is explored that disease model stresses on relapse prevention counselling. Despite, the focus on relapse prevention, the content of the interviews shows the high rate of relapse in disease model which was high as reported by R2 ***"Success ratio is low due to which we are unable to achieve the desired results as a professional".*** R1 ***"The rate of relapse among substance users is very high."*** R4 "***Relapse is very common which occurs after few weeks of the treatment."*** Past research also confirms our findings that the relapse of SUD is 80% in first six months after the treatment, similarly, 40% to 60% rate of relapse is also reported after the successful rehabilitation (Kabisa et al., 2021; Kassani et al., 2015). Hence the results were consistent with past research that relapse is the major concern in disease models and there is a very strong need to deal with it.

The significant challenges in the model were related to lack of cultural and religious relevance as stated by R1 ***"It does not go with our values",*** R2 ***"there is need of adding societal norms, values"*** and R3 ***"Spiritual healing and religious aspect which is a big part is missing especially in Pakistan".*** As we know in Pakistan most of the population that come for residential treatment, majority of the patients are Muslims. So, the culture of Pakistan is also embedded in religion. Therefore, culture and religion go hand in hand. Patients' beliefs and psychological constructs are based on religion, and they tend to

respond to those things which are related to religion effectively. Change can easily be embraced when it is based on religion. Hence, in the present study the focus is on cultural and religious based limitations of the disease model. This model is not indigenous to Pakistani culture. Moreover, religion has salutary effect on mental health and religion, and substance abuse has inverse correlation with religion which means that if you are more religious then you are less likely to indulge in substance related activities (Whitley, 2012; Khalily et al., 2024). Whitley (2012) also cited that in narrative shaping of human experience, constituting meaning, and organizing framework for individual and collective experience is also guided by religion, which is vital resource for resilience in time of suffering, distress and adversity.

The other most important challenge in this model was lack of evidence-based efficacy as reported by R4 ***"In Pakistan the concept of rehab or the model of treatment is not research based"***, and ***"No, this is not evidence-based model"***, and R3 ***"It is stagnant this Minnesota model which we are following from past many years"***, and R4 ***"Secondly, it's an outdated model".*** According to Mendola (2003) there are two most famous model (one is moral and other is disease model) which are working with substance use disorder, but both have some problems with theory and practice. Every model has limitations related to law, societal norms and other cultural differences. Similarly, according to Khalily et al. (2024) most of the private sector residential rehab centre in Pakistan utilizing disease model which doesn't involved robost or structured treatment schedule and substance use a significant societal challenge and exploring alternative therapeutic approaches is crucial. These findings are suggesting the need of an effective treatment strategy as well as confronting this substential challenge of substance use.

Mendola (2003) also shared the challenges of disease model that it is a single model explanation for understanding SUD which is a complicated problem. Furthermore, the disease model is widely accepted among general public and treatment facilities for SUD, but researchers have rejected this model due to its inefficacy and high rate of relapse. Mendola (2003) as cited in his dissertation said that the disease model is not supported by data, and it is inconsistent and ineffective. They suggested that the model oversimplifies the complex condition and people involved in substance related problems through different reasons and interactions. Therefore, disease is not the same, and same treatment cannot be effective for all. Hence, the findings of present research also suggested that SUD is a complicated disease which shares different aspects of a person such as psychological conditions, biological or neurological aspects of addiction, social and spiritual states as well. So, the findings suggested that a comprehensive model should be proposed so that it can deal the problem effectively. Moreover, the model should be evidence based.

Treatment for comorbidity was also a challenge for disease model as informed by R3***"No, this model works for substance use disorder only because most of the content is related to drug addiction"***, and R1 ***"It does not work much with psychological disorders other than that"*** R2 ***"Comorbidity in substance use treatment in Pakistan is altogether ignored and sufficient treatment is not provided."*** showed the inability of model in dealing with comorbid mental illnesses. According to Volkow (2001) the comorbid mental illness in SUD shared common predisposition such as stress and drug abused are linked with suicide, bipolar disorder and psychosis. Hence, in present study the focus of model was treating SUD only, but the related comorbidity of mental illness wasn't addressed in the model. A literature review was conducted by Armstrong and Costello (2002) on

adolescence substance use and psychiatric comorbidity. They reviewed 22 articles from 15 studies. The common comorbidities of psychiatric disorders with SUD in adolescents were reported. Frequently diagnosed disorders were disruptive behavioral disorder (25%) and conduct disorder (50%) followed by depression which was 20% to 30% (Armstrong & Costello, 2002). In an article Havassy et al. (2004) cited the findings about comorbidity with SUD that the one half of the patient in treatment for SUD diagnosed with comorbidity of mental illness. The reported schizophrenia spectrum disorders in patients with SUD was 31%, anxiety 61%, bipolar disorders 20%. Hence, the findings about comorbid mental disorders in substance use is a challenge and any model who is treating SUD should be well equipped with treatment protocol to treat such comorbid mental disorders. The need of holistic and integrated treatment model is required to effectively cater comorbid mental disorders which is not the focus in disease model (Khalily et al., 2024).

Important recommendations for an effective model show that it should include religious and spiritual aspects as reported by R4 ***"first our religion should be included in it",*** R2 ***"See effective and comprehensive model is that which covers all aspects of spiritually.",*** and R3 ***"Our Pakistani culture related and religion related even family related aspects should be added to a comprehensive model"*** references emphasize on incorporation of religion, culture and values. Therefore, the challenges mentioned in discussion also brought to light the need for new effective and evidence-based model that should be comprehensive in its regard for treating SUD.

Substantial findings during Unfreezing Stage

Important findings were highlighted during the unfreezing by the participants include:

- No spiritual healing
- No self-enlightenment
- Contemporary model does not have evidence-based approach
- More of a teaching-based group lecture
- Misfit in Pakistan's culture
- Repetition in different methods of model
- Not focused on individual self-change
- No replacement for positive activities
- The model does not attend comorbid mental illness in drug addicts
- Model does not involve cultural and religious adaptation
- Higher relapse rate
- Not much focus was given to family's involvement in treatment of individual
- Traditional models do not seem relevant when sharing concept with patients.
- Sometimes application of some aspects of the model cause dissatisfaction
- No ongoing supervision and structure

Study II

Translation and Validation of Addiction Recovery Questionnaire (ARQ)

Addiction Recovery Questionnaire (ARQ) is a measure of recovery from substance dependence. It can also be used to navigate the treatment journey and to achieve goals. The instrument has 12 items, covering key areas related to normal living, abstinence and positive expectancy, by working on these goals can enhance recovery positively. Scores can be calculated by taking the sum of participants response. ARQ has 12 items, and it is a four-point rating scale such as 0 = not at all, 1 = rarely, 2 = often, 3 = all the time. The maximum score is 36. There are four items needed to be reverse scored Q.5, Q.6, Q.8 and Q.9 (Truby, 2020). ARQ was developed to measure recovery and can be used in outcome assessment with high face validity (Iveson-Brown & Raistrick, 2016).

Present study was much needed because the English is not the primary language of the participants. Similarly, the contextual meanings of English and Urdu are not similar. So, the translation was required to understand the statements of the ARQ comprehendible. Moreover, the uniformity of language with other measure is also required as other measures were also in Urdu and medium of communication was also Urdu according to the educational level of the targeted population.

Translation of Addiction Recovery Questionnaire (ARQ)

ARQ was also translated and validated in present study. Psychometric properties of Urdu version of ARQ were established in Pakistani culture. Before the initiation of translation of ARQ, the author was requested to grant permission for translation of the ARQ into Urdu language. Because of specific grammatical structure and constructs used in the questionnaire for measuring recovery, therefore a word-for-word translation from source language (English) to target language (Urdu) was not possible (Behtash & Moghadam, 2017). Hence, for translation of ARQ oblique translation with a technique

transposition was used. In this technique during translation, one part of speech is changed into target language without changing the meanings of source language (Behtash & Moghadam, 2017). In the present study, translation of ARQ, transposition was carried out to replace certain words in target language while keeping the meanings constant (Riaz & Khalily, 2013).

ARQ has following three subscales:

i. Normal living (items 1, 2, 3, 4, 5) these items are related to having enough money, trust building through being consistent in reliable behaviors, suitable accommodation so that to have stable living, activities of daily living such as hygiene, and daily routine, and lastly, criminal activities.

ii. Abstinence (items 6, 7, 8, 9) the subscale consists of staying away from drugs, making new friends, being abstinent, and substitute prescriptions for preventing relapse.

iii. Positive expectancy (items 10, 11, 12) this subscale includes optimism, self-esteem and confidence as a change thinking in variety of situations.

Method

Objectives

- To translate ARQ in Urdu language for cultural relevance
- To determine the reliability and validity of the instrument

Procedure for Translation of ARQ

Before initiating the process of translation, permission for using this scale as well translating it into the Urdu language was sought from the author of the instrument. After successfully attaining the permission from the author (Iveson-Brown & Raistrick, 2016) for translation, individual who are having experience in drug addiction rehabilitation along with their proficiency in English language as secondary language were requested to translate this scale into Urdu. Three Ph. D scholars who were having field experience of approximately 10 years and one M.S Psychology who were practicing as clinical psychologist translated this scale into Urdu. A focus group was arranged to finalize the best translation of the scale.

Original English version of the scale was translated by four independent translators who read and translated all the items including the instructions. All translations were compared in a committee of three experts along with original instrument for selection of best translated items after reviewing every item from all Urdu versions of the translation for achieving consensus final draft was prepared which was based on the selected items.

Secondly, the final Urdu version was also back translated into source language. Four participants were contacted for translation and a review committee of two experts were also incorporated for reviewing discrepancies and selection of most relevant version

of the scale. Finally, the selected English version finalized in experts review committee was emailed to the authors for their opinions.

Back translation

According to Harkness and Schoua-Glusberg (1998) back translation is generally used in survey research it is a type of translation of a translation back into source language for assessment of the translation quality. The purpose of the technique is to compare and contrast the back translation with source text.

Comparison Among Translations

Present study had translated the ARQ and established psychometric properties of Urdu version of ARQ with relevance to Pakistani culture. Permission of translation and use of the scale was taken properly from the author. Before the initiation of translation of ARQ, author was requested to grant the permission for translation of the requested questionnaire into Urdu language. Because of specific grammatical structure and constructs used in the questionnaire for measuring recovery, therefore a word-for-word translation from source language (English) to target language (Urdu) is not always possible (Behtash & Moghadam, 2017). For translation of ARQ oblique translation with a technique transposition was used, where the idea was to during translation, one part of speech was changed into target language (Urdu) without changing the meanings of source language (English) (Behtash & Moghadam, 2017). In the present study, translation of ARQ was carried out through a technique known as transposition was used to replace certain words in target language while keeping the meanings constant (Riaz & Khalily, 2013). Moreover, four translations were generated through this process, and these were mentioned in

annexure C. Annexure C shows four translations along with the stem statements of the instrument ARQ.

Selection of the Final Urdu Version of ARQ

Finaly, the Urdu version of ARQ (ARQ-U) was selected from available translations. A review committee was consulted for the selection of the final version. The committee consisted on three experts, and two of them were Ph. D scholars and clinical psychologists and one was psychologist and working as associate professor and dean faculty of Humanities and Social Sciences. The committee reviewed the discrepancies and compared the text among all translations which proceeded the final Urdu version of ARQ. This version was given in annexure D.

Comparison among Back Translations

Four independent translators were contacted for backward translation of ARQ-U into English language. They all were from Pakistan and the Urdu was their first language. One of the translators is from psychology background having more than ten years of experience and also having higher education in English literature and psychology. Moreover, another translator has done Ph. D in English literature along with 10 years of experience as a professor. The third one was also from English literature having M. Phil degree along with 15 years of experience in teaching. Forth one was also a teacher having masters in English along with 15 years of experience. Neither they all were previously aware of the original version of the ARQ, nor they were presented the original version. So, they were given ARQ-U for translation they have translated the scale. Their translations were given in the annexure E.

Selection of Final Version from Back Translations

Two experts were contacted for the selection of the final version from back translations. The experts have infield experience in clinical psychology and they both are Ph. D scholars. Initially, four versions were collected from independent translators. They all were not aware of the original English version of the ARQ. They were given English versions of ARQ for review. They reviewed the translations thoroughly. Finally, in expert review committee finalized the final version from back translations by comparing the translations with original scale. They selected the items which were most relevant or identical to the original versions. The finalized version was given in annexure F.

Suggestions of Author and Co-developer of ARQ

The finalized version was emailed to the author for the opinion. The author evaluated the version with co-developer, their opinions and recommendations were given in annexure G.

After incorporating the suggestions of review committee for the final version of back translation was emailed to the authors for their valuable review and feedback. As per the review of the authors following are the important concerns:

i. The question of how the questions flow from the initial instruction - the question stem statement says, "With regard to the previous month have you..." and so each question should follow with appropriate grammar. In English questions 4, 7, 8, 9, 10, and 12 follow perfectly, whereas the others have an additional verb or lack one. It maybe of course be that this reads ok in Urdu.

ii. See attached with two issues in the wording of questions nine and twelve.

The suggestions reported in the table showed that the authors agreed to all items except item nine and twelve. They mentioned that these items were related to the original scale. They also pointed out the grammatical changes in questions stem statement in order to correct the sentence flow.

Additionally, they suggested some changes in the wording of item nine and twelve. In item nine the construct is about the medication for mental illness and drug addiction but the translator's translated medicines for addiction and psychiatric illnesses as drugs which was the cause of confusion or misleading towards illegal drugs. Similarly, item 12 has also needed to be modified in terms of wording as per the suggestion, the question should focus on the willingness to not taking drugs or staying in abstinence.

Incorporating the Suggestions of Authors

The final version of ARQ generated after incorporating the author's suggestions was shown in annexure H. These suggestions were recommended by the authors of the ARQ. The suggestions were incorporated at three items such as item two, item nine and item twelve. In item two the item sentence was not in accord with the stem statement, the flow of the question was not following the statement, so the item was re-worded by the experts committee. The committee was comprised of two experts. Moreover, the modification of item two was suggested as "been trusted by important people in your life?".

Similarly, the committee also modified item nine because the authors suggested that the word drug has different meaning and it is indicating for illegal drug however, the item is about the medicines. Hence, the item is modified as "been taking medications for mental illness or drug addiction?". Finally, item 12 was also modified according to the suggestion of authors. The item was slightly modified by the expert committee as "been

confident in refusing to use alcohol or other drugs you might feel to use in a situation?". This suggestion was about not taking drugs by individual in time of craving or exposure to triggers.

Sample

The sample of the present study was comprised of 140 substance users who were hospitalized in different residential treatment facilities of Islamabad. Their age range was 15 to 64 and their level of education was primary to Ph.D. They were belonging from the different areas of Pakistan. Sample was selected using convenience sampling technique. Patients with psychological disorders having no history of substance abuse were excluded from the study.

Inclusion criteria. Individuals having diagnosis of SUD and were hospitalized for treatment were included in the study. Additionally, individuals with SUD having comorbid psychological illness were also included in the study.

Exclusion criteria. Individuals who were hospitalized for treatment and they don't qualify the diagnosis of SUD, but they are having diagnosis for psychological disorders were excluded from the study.

The sample characteristics were shown in the following table.

Table 2

Sociodemographic Characteristics of Participants (N=140)

Characteristics of participants	*f*	%
Age		
Late adolescence	46	32.9
Early adulthood	52	37.1
Middle adulthood	42	30.0
Gender		
Male	136	97.1
Female	4	2.9
Marital status		
Unmarried	64	45.7
Married	70	50.0
Divorced	5	3.6
Widow	1	0.7
Education		
Primary	32	22.9
Middle	17	12.1
Matric	27	19.3
Intermediate	36	25.7
Graduation BS	22	15.7
M.S / M. Phil	5	3.6

Ph. D	1	0.7
Choice of drugs		
Opioids, heroin or pain killer	23	16.4
Cocaine	5	3.6
ICE, Methamphetamine	25	17.9
Alcohol	12	8.6
Cannabis, weed, marijuana	45	32.1
Multiple drugs	30	21.4
Number of relapse		
No relapse	62	44.3
1 time relapse	21	15.0
2 times relapse	24	17.1
3 to 4 times relapse	23	16.4
More than 5 times relapse	10	7.1
Duration of drug use		
0-1 year	24	17.1
2-3 years	20	14.3
3-5 years	25	17.9
5-10 years	37	26.4
11 and more	34	24.3
Comorbid mental illness		
Psychotic disorder	39	27.9
Neurotic disorder	8	5.7

No mental illness	93	66.4

The above table is explaining the frequencies and percentages of the important demographic information. The age range of the substance users reports that 32.9% are in late adolescence, 37.1% are early adulthood and 30% are middle adulthood. The gender of the study indicates that there were 97.1% males and only 2.9% females. The marital status indicates that there are 45.7% unmarried substance users, 50% married, and 3.6% are divorced and 0.7% are widowed. The educational level indicates that 22.9% are with primary, 12.1% middle, 19.3% matric, 25.7% intermediate, 15.7% graduate, 3.6% M.S or M. Phil and 0.7% have done Ph.D. Choice of drugs indicate that 16.4% are using opioid, heroin and pain killer, 3.6% are cocaine users, 17.9% are using ICE, methamphetamine, 8.6% are using alcohol, 32.1% are cannabis, weed, and marijuana users, 21.4% are multiple substance users.

Number of relapses indicate that 44.3% are with no relapse, 15% have relapsed once, 17.1% have relapsed twice, 16.4% have relapsed three to four times and 7.1% are relapsed more than five times. Duration of drug use indicates that 17.1% are using substances for one year, 14.3% are using substances for 2-3 years, 17.9% are using substances for 3-5 years, 26.4% are using substances for 5-10 years, and 24.3% are using substances for 11 and more years. Comorbid illness indicates that 27.9% are with psychotic comorbidity, 5.7% are suffering with neurotic disorders, and 66.4% have no mental illness.

Procedure

Before conducting the research, institutional permission was sought out from the administration of the respective institutes. The informed consent was taken from the participants for their recruitment in the study. The participants were approached in their residential treatment centers. They were briefed about the nature and purpose of the study. During this process questionnaires were handed over to their corresponding psychologists and individually administered on the participants in comfortable environment. The data was gathered by their responses on the rating scales. For data analysis statistical tools were used according to the objectives of the study.

Results

Table 3

Psychometric properties of ARQ-U and Subscale (N=140)

Scale	*K*	*M*	*SD*	Range	Cronbach's α
Addiction recovery questionnaire	12	20.50	5.44	0-29	0.60
Normal living	5	13.92	2.35	0-12	0.16
Abstinence	4	8.84	2.72	0-12	0.47
Positive expectancy	3	8.17	2.20	0-9	0.51

Note: The ARQ-U Addiction Recovery Questionnaire-Urdu has three subscales. K= no. of items, M = mean, SD = standard deviation.

This table emphasizes the psychometric properties of the research scale which was translated in Urdu. The alpha reliability α = 0.60 of this scale indicates that the reliability of this scale is falling in the acceptance range. The α = 0.16 for the subscale of normal living indicates a low level of reliability, the α = 0.47 for the subscale of abstinence also indicates low reliability, and α = 0.51 for the subscale of positive expectancy also explains the low level of reliability because of the limited number of the items.

The content and face validity of the ARQ-U was carried out using the CVR (Content Validity Ratio) in which five independent enumerators were requested to rate the translated version of the scale on a five-point rating scale. Where, selecting the items as essential to includes in the scale required rating from all enumerators.

Table 4

Content Validity Ratio of ARQ-U (N=5)

S. No	Statement of the item	CVR
1	ضروریات زندگی بسر کرنے کے لیے کافی رقم موجود تھی؟	1
2	آپ کی زندگی میں موجود اہم لوگوں نے آپ پر اعتماد کیا؟	1
3	مناسب رہایش میں قیام پذیر رہے؟	1
4	روزمرہ کی سرگرمیاں جاری رکھی رہیں؟	1
5	مجرمانہ سرگرمیوں میں ملوث رہا ہوں؟	1
6	ایسے لوگوں کے رابطے میں رہا ہوں جو شراب یا دیگر منشیات کا استعمال کرتے رہے؟	1
7	ایسے لوگوں کا دوست رہا جو شراب یا منشیات کا استعمال نہیں کرتے؟	1
8	شراب اور دیگر منشیات سے مکمل پرہیز میں رہا؟	1
9	منشیات یا ذہنی امراض کی ادویات لیتا رہا؟	1
10	مستقبل سے متعلق مثبت احساس تھا؟	1
11	اپنے بارے میں عموماً اچھا محسوس کیا؟	1
12	شراب یا منشیات جنہیں آپ نہیں چاہتے تھے استعمال کے دباو کی مزاحمت پر پُر اعتماد رہے؟	1
CVI		1

Note: CVI = Content Validity Index, CVR = Content Validity Ratio

Table four shows the content validity ratio established by five independent enumerators which is attached as annexure J who has rated the ARQ-U. All enumerators had rated every item of ARQ-U as essential for the scale. The computed value of CVI = 1 indicates good content validity of the ARQ-U.

Table 5

Confirmatory Factor Analysis of ARQ-U (N=140)

Model	χ^2	*df*	*p*	CMIN/*df*	Fit indices				
					CFI	GFI	TLI	IFI	RMSEA
Model D	102.86	51	.00	2.017	.72	.87	.64	.74	.08
Model 1	63.20	48	.07	1.317	.92	.92	.88	.92	.04

Note: DF=Degree of Freedom, P-value, CFI=Comparative Fit Index, GFI= Goodness of fit index, TLI=Tucker Lewis Index, IFI=Incremental Fit Index, RMSEA=Root Mean Square Error of Approximation.

The above table explains the results of confirmatory factor analysis (CFA) which is comparing the two models (Model D and Model 1) which depicts the goodness of fit. The calculated value of Chi-square, 63.20 indicates that model one is well within the acceptable range with a p value of 0.07 indicating a better fit. The computed value of CFI (Comparative Fit Index) and GFI (Goodness of Fit Index) 0.92 for model one indicates a good fit. The value of TLI (Tucker Lewis Index) and IFI (Incremental Fit Index) 0.88 and 0.92 also indicate a good fit. The value for RMSEA was 0.04, hence, the model showed an adequate fit to the data.

Discussion

In the present study the demographics of the sample having drug addiction are reported in term of age, substance type, duration of use and the numbers of relapse. So, SUD were reported in three age cohorts as 33% in late adolescence, 37% in early adulthood and 30% in middle adulthood. Additionally results also showed the percentages of choice of drugs. Percentage of cannabis is 32%, second higher percentage is 21.4% for multiple substance users such as combination of cannabis with ice or opioids and alcohol, 18% are using ICE (methamphetamine) and 16.4% are using opioids such as heroine, painkillers. Sau et al. (2013) also reported researches with percentages such as opiates rate was reported as 57% in males, 51% rate of heroin, alcohol 38% rate, rate of heroin and 22% rate of cannabis, Results were also consistent with old researches such as a research conducted by McLellan (2017) reported that 85% of the individuals who were met the criteria of substance use disorders fall in adolescence, additionally, the report of Drugs and Crime (2018) stated that drug use higher among 18-25 years of age.

Moreover, they reported the data from 28 states of Europe, along with Norway and Turkey that use of amphetamine and ecstasy among individual under aged 35 is two to three times higher than older individuals. Additionally, the lifetime use of cannabis among young individual aged under 35 is much higher, these findings are also consistent with the cannabis use in present study which was reported as 32% that indicates the cannabis is most common among addicts. Data from Plurinational State of Bolivia showed that the recent use multiple substances are significantly higher among the age group 18-24 than among those in other age group 36-50. According to European Monitoring Centre for Drugs and Drug Addiction, the concurrent use of more than one substance is the

characteristic of young individuals as compared to older individuals and its more common as recreational and regular drug use it also involves more established patterns of multiple substance use which is further linked with patterns such as increased risk for long-term problems, risk taking through binge drinking of alcohol or binge use of stimulants at parties or in group settings (UNODC, 2018). The present study also indicated the relapse rate of the patients as 44% of the patients were in their first treatment and 66% were relapsed one time or more than one time. In research conducted by Sau et al. (2013) reported 31% of the sample were relapsed individuals.

Comorbid mental disorders were also reported in the present study, the results indicate that 27.9% are with psychotic disorders, 5.7% are suffering with neurotic disorders, and 66.4% have no mental illness other than substance use disorder. Past literature also showed the rate of comorbid disorders of substance use disorder. The common co-occurrence illnesses were anxiety (44.7%), depression (30.6%) and paranoid delusion (9.8%) (Sau et al., 2013). According to Volkow (2001) drugs has a role in triggering psychosis in those without having the history of psychiatric illness. Thought is that the stimulant drugs trigger psychosis and there is excess of dopamine concentration in the brain. Additionally, individual with history of methamphetamine abuse still have symptoms of psychosis however they have loss of dopamine transporters in brain.

The psychometrics of the scale especially the reliability and validity were not determined before, this was the first attempt for reliability analysis and the results showed the alpha reliability $\alpha = 0.60$ of this scale indicates that the reliability of this Urdu version scale is falling in the acceptance range. Although the reliability for the subscales is compromised because of the limited item pool of only 5 items. Similarly, the sample size

was limited, to only 140 substance users. Moreover, the selected population was clinical and its comparison with the recovered population of substance users was missing. The scale was administered in the initial treatment tenure which has certainly affected the response outcomes. The patient recruited in the study was taken care by their caregiver, so they were not homeless psychiatric population. Hence their accommodation and food as well as sufficient financial support were also available. These aspects of normal living were not consistent within the subscale which is contributing to low recovery of the subscale. Secondly, in third study of this dissertation ARQ-U was also administered at three subsequent time frames where the reliability of the scale was improved which suggested that the manifestation of recovery in the sample was significantly improved over the period of time.

Validity of the scale in present study was reported as content validity which was calculated using CVR. According to Ayre and Scally (2014) the panel of five experts the minimum or critical number of experts for considering the scale item as an essential to include required five experts so the suggested CVR for the panel of five is 1. Hence, in the present study ARQ-U has 12 items and the face validity was good, so the content of the items was effectively relating the construct (Ayre & Scally, 2014).

Furthermore, the findings related to face validity showed that when asked about the participants about the top three items for recovery they put abstinence at top for recovery, for problem drinkers 65% of them put abstinence at first thing for recovery, eight percents put accommodation and mental health at second level, 59% problem drug users also put abstinence at first level, and 14% said staying away from other users is second level thing for recovery. Conclusively, 86% of problem drinkers and problem drug users, 49% of

concerned others, 36% of specialists, 43% of generalists and 42% of commissioners put abstinence at first (Iveson-Brown & Raistrick, 2016). ARQ also has the ability to discriminate the respondents into three groups such as well functioning, in treatment and recovery as validating the outcome of ARQ (Truby, 2020).

The results of confirmatory factor analysis showed acceptable results with a df to chi-square ratio of 63.20, which is well within the acceptable range. Value for RMSEA was however 0.04, hence the model showed an adequate fit to the data. The results of this study are also evident by the author of ARQ (Iveson-Brown & Raistrick, 2016) where he constructed the scale and run the exploratory factor analysis. The component analysis for ARQ-U found three factors abstinence, normality and positivity are also being confirmed by the confirmatory factor analysis of this research with acceptable range of chi-square value of 63.20 and RMSEA value of 0.04 with adequate fit of the model.

Study III

Clinical Trial of IICRA

The aim of the present study was to adapt the CRA Islamically because it is very important to add the cultural and religious aspects which are fundamentally important for the treatment of SUD. In CRA, face to face interaction is required for intervention including eight sessions for focuses on the reality of client's social environment so that for learning real life opportunities could be focused as per client needs to enhance engagement and learning (Godley, 2001).

For internal motivation and involvement in CRA, adaptations were added to enhance CRA's effectiveness. There were two major adaptations in CRA to make it accord with the cultural relevant with the targeted population. First adaptation is based on religion Islam. It includes several sections, and these sections are adapted in CRA's counseling goals. In the first section morality was adapted with CRA, morality is about the Islamically integrated ways about hygiene, sleep, eating, clothes, meeting others, physical health, happiness and sadness related (Abbass, 2017). Second section was related to internal framework of human psyche, which comprises of Cognition (Aql), Behavioral inclinations (Nafs), Spirit (Ruh), Emotions (Ihsaas) and Heart (Qalb) (Keshavarzi & Khan, 2018). In the third section principle of change, behavioral modification and tazkia-e-nafs were added along with three stages in principle of change: Inkishaf, itidal and Itehad (Keshavarzi & Khan, 2018).

Objectives

1. To investigate whether IICRA has the better efficacy in treating substance dependence along with comorbidities than the indoor conventional treatment for substance dependence.

2. To adapt the IICRA treatment strategy grounded in Pakistani culture and religious values for the treatment of drug addicts in Pakistan.
3. To determine whether IICRA treatment is more effective in treating poly drug addicts and drug addicts with or without comorbidities.
4. To determine whether IICRA treatment is more effective for those addicts who were treated for one or more treatment previously as compared to those having first treatment.

Hypotheses

1. The SUD patients treated with IICRA will have significantly higher rate of recovery to conventional treatment.
2. The IICRA will have higher efficacy to conventional treatment, treating comorbid mental illnesses.
3. Patients treated with IICRA will continue to express higher recovery rates over six months of follow up compared to conventional method of treatment.
4. Recovery from SUD will be significant, i.e., assessment measure (ARQ) will reveal significant changes that will show positive effects, from baseline to post-treatment assessment.

Method

Islamic Integration of CRA

CRA was adapted Islamically session wise detailed is also added in following text. In study I the need assessment was evaluated through qualitative study which was unfreezing stage. The second stage was a moving stage where the training of psychologists was conducted. This training was based on IICRA (Islamically Integrated Community Reinforcement Approach) as well as the conducting of clinical trials. The third stage was the refreezing stage where the change was evaluated and adopted. In CRA, face to face interaction is required for intervention including ten sessions for focuses on the reality of client's social environment so that for learning real life opportunities could be focused as per client needs to enhance engagement and learning (Godley, 2001).

For internal motivation and involvement in CRA, adaptations were added to enhance CRA's effectiveness. There were two major adaptations in CRA to make it accord with the cultural relevant with the targeted population. This adapted version of CRA was named as Islamically Integrated Community Reinforcement Approach (IICRA). First adaptation is based on religion Islam. It includes several sections, and these sections are adapted in CRA's sessions. In the first section morality is being adapted with CRA, morality is about the Islamically integrated ways about hygiene, sleep, eating, clothes, meeting others, physical health, happiness and sadness related (Abbass, 2017). Second section is related to internal framework of human psyche, which comprises of Cognition (Aql), Behavioral inclination (Nafs), Spirit (Ruh), Emotion (Ihsaas) and Heart (Qalb) (Keshavarzi & Khan, 2018). In the third section principle of change and tazkia-e-nafs along

with the principle of change: Inkishaf, Itidal and Itehad were also added in treatment (Keshavarzi & Khan, 2018).

Second adaptation is about the effective coping skills related therapeutic intervention, which is comprises of four distinctive categories such as emotional management (McKay, Fanning, & Ona, 2011), interpersonal effectiveness: assertiveness, habit formation (Covey, 1991) and relapse prevention counseling (Gorski & Miller, 1986).

Core sessions of IICRA are described exhaustively in the coming section.

First Session

The session has prevailed over the first 21 days following the admission of the patients. So, the patients initially go through detoxification from substances as they feel better in few days the initial interactions with their therapists begin. The goal of the session is about rapport building at first interaction with the therapist. Therapist introduces his or her-self to the patient for comfortable therapeutic alliance which can be achieved by eighth day. The goal is to give information about the treatment plan of IICRA, its philosophy and success along with length of sessions, disclosure of information, recording of sessions, and urine sampling for abstinence. Therapists can use the happiness scale for baseline assessment to know about what is important for the individual. The goals in first session are listed below:

Rapport Building. For effective therapeutic alliance (Murabatah) the rapport building is essential aspect. It can be achieved by comforting the client through the introduction of therapist and stating the significance of the sessions for recovery and mutually deciding the therapy goals and how would those goals be measured and achieved throughout the process. It also includes empathetic listening, following and genuineness towards the client.

Hygiene. Physical, washroom, health, sleep, food and clothing related hygiene are another goal which should be achieved in the first 21 days and followed though out the residential treatment. Patients' hygiene monitoring through the morning roll call was added along with the feedback of therapists while interacting with the patients individually and in group sessions. Etiquettes or manners were included in treatment protocol. These manners include taking care of physical health and hygiene related things, following sleep times making their beds, praying and food or eating related behaviors.

History Taking. It includes information related to patients' childhood, education, age related significant events, history of the substance use, professional, social and family related history. Formal and informal assessment also conducted in history taking sessions. Finally, it also includes premorbid personality and morbid personality related information.

Daily Routine Regularity Information. It includes information for orienting the patients about the daily routine of the residential treatment.

Answering the Patient's Concerns. In case of involuntary hospitalization, patients usually have different concerns for their hospitalization. Answering those concerns and dealing accordingly helps them to find true directions and purpose for treatment. Hence, initial concerns of the patients should be addressed, and that platform was established in dealing patients.

Invitation for Daily Routine Regularity. After 3-5 days following the hospitalization of patients, an invitation for carrying the daily routine was proposed to patients. They were encouraged to carry out those activities such as attending group sessions or classes.

Physical Activities. Patients were also encouraged to do indoor walks and to participate in indoor games as well as outdoor activities such as outdoor physical exercise training sessions and outdoor walks.

Grief Recovery. Finding Hope (Rada bil qada) or grief recovery is essential in first phase of the treatment. In the treatment grief can be attributed to the loss prior to the treatment or the loss caused by entering in the treatment. Narrations are always important for cooling down traumatic memories so by narrating about the losses can cool the impact for that traumatic memory so in the session the importance of sharing from clients can also be encouraged. But in any case, the denial of reality was significant. Hence working with clients to make them to accept the loss and related reality along with letting it go as finding the core beliefs related to fate such as in Islam the belief of "Rada bil qada" means accepting the will of Allah by surrendering oneself before the will of Allah can make a way to accept the loss which was not in control of us at the moment.

Second Session

In this session, the therapist should have completed functional analysis of substance use, functional analysis of pro social behaviors, happiness scale form, and goal of counselling form. Encouragement of prosocial behaviors can start in these sessions and other procedures can be used depending upon the needs of individual (Godley, 2001). It also involves the introduction of CRA in reference to substance used disorder and disease concept. Following are the goals should be achieved in next two weeks:

IICRA Introduction in Reference to Drug Addiction's Disease Concept. The specific goal should be achieved while stating the philosophy of CRA and how does it work with drug addiction such as explaining about environmental contingencies, mechanism of

reward in development of drug addiction. Secondly, the disease concept is another important goal in the session. Disease concept is crucial for developing insight and breaking denial of disease in patients. Sharing information at micro level so that they can self-diagnose their condition during session is a kind of therapeutic assistance that can develop realization and can help them to assess the magnitude of disease along with its damage caused to patient.

IICRA: Functional Analysis (Initial Assessment) + Assessment of religiosity. Functional analysis form for initial assessment for using behavior should be used for collecting information related to external and internal triggers such as persons, places and time related to substance use as well as the thoughts, emotional feelings and physical feelings right before taking drugs. Moreover, it also includes information of substance type, quantity, time elapsed during substance intake. Next part of the form is about the short-term positive consequences and long-term negative consequences. Short term positive consequences are usually about positive thoughts emotions and physical feelings related to substance use along with the positive aspects of substance use with specific persons, situations and time. Long-term negative consequences are related to different areas of life such as family members, friends, physical feelings, emotional feelings, legal situations, school situations, job, financial and other situations.

IICRA: Happiness Scale. Happiness scale is a rating scale that gives us information related to different areas of life. It can give information about the functioning of a person over areas of life. A client has to rate his or her happiness with the given category of life area from one to ten whereas one means completely unhappy and ten means completely happy. Different areas of life include substance use, interpersonal relationship such with

parents, spouse, and friends, school, job recreational activities, personal habits (getting up, being on time, finishing tasks, etc), legal issues, money management, emotional life, communication, general happiness, and other.

IICRA: Prosocial Behavior. Prosocial behavior is also a functional analysis of positive activities which is equally important and pleasurable without involving drugs related activities. This activity can be related to hobbies, it also involves internal and external triggers as well as short-term positive consequences and long-term negative consequences.

IICRA: Goals of Counselling (Identification of Intervention Strategies in Reference to Initial Assessment). In response to the functional analysis, pro-social behaviors and happiness scale, therapist can identify the areas of patient to determine the goals for further treatment.

IICRA: Goals of Counselling (Disease Concept as per Model of nafs: Ten Tasks for Substance Use). Islamically integrated psychotherapy emphasizes the lower level of self (nafs amara) which is pleasure centered and also related to animalistic desires. Short term gratification is also the trait of this self and saying no to these desires is also important. In this goal the focus of a therapist should be on educating the ten steps strategies for staying in abstinence. These tasks are related to knowing about disease, identifying defense mechanisms, prioritizing recovery, informing significant others about recovery, identification of triggers and their management.

Third Session

IICRA: Goals of Counselling (Psycho-Spiritual Functioning). Psycho-spiritual functioning and its domains were also included in the treatment. According to Keshavarzi

and Khan (2018) there are five domains for psycho-spiritual functioning such as aql (cognition), ruh (spirit), nafs (behavioral inclination), qalb (heart) and ihsas (emotions). Qalb is the vessel for health and pathology in Islamic spirituality. Ruh, nafs, ihsas and aql has positive or negative effects on qalb. So, the nafs is naturally not evil and it can be trained or disciplined for reaching its ultimate state of nafs-ul-mutmainah. Similarly, aql is cognition and it is based on rationality and logic. The ruh is the spirit and it's another element of human psyche which is life force with innate tendency to seek purpose of life and meanings of existence, and need for divine. Ihsas emotions are the inner human states aroused by physical, psychological and social environments. These elements are interconnected, and they affect each other. The healthy psycho-spiritual functioning is wholistic in nature focusing on elements of psyche along with the relationship with others and the relationship with their creator.

In the session, first assessment for psycho-spiritual functioning is required along with diagnosis and case conceptualization.

Forth Session

IICRA: Goals of Counselling (Behavior Modification and Reformation). In this session the goals of therapy are behavioral modification and reformation. In SUD the behaviors are important and pleasure-seeking attitude and habit formation in term of addiction are common. So, for enabling the positive change in oppose to addiction is required and it also the part of CRA intervention to replace the positive or good behaviors in place of drug related behaviors. Reformation of behavior (tadhhīb al-nafs) and ingraining of good character (akhlāq) is the ultimate goal in this session. The goal of behavioral training is to initiate equilibrium or itidal among instinctual impulses of nafs to restore

psycho-spiritual health. There are three stages of change of nafs are nafs ammara (self that provokes evil), nafs lawwamah (reproaching self) and nafs mutmainnah (tranquil self). The term of self (nafs) refers to inherent drives associated with anger and appetence (Misbah & Setyaningrum, 2022).

Reciprocal Inhibition. Reciprocal inhibition was added as an intervention for behavioral modification. The idea is to encourage the patient to carry the alternative behavior in account of undesirable behavior so that the incompatibility can discourage the occurrence of undesirable behavior. Moreover, structural changes in environment can also be effective for changing behaviors, changing the company of others, involving positive persons those encourage change in social structure for positive support systems to prevent addiction related craving, or urge to use.

Another intervention was also included in the treatment is six M's model of behavioral change which are mushāraṭah (goal-setting), murāqabah (self-monitoring), muḥāsabah (self-evaluation), mu'āqabah (consequences), mu'ātabah (self-reprimand), and mujāhadah (exertion) (Misbah & Setyaningrum, 2022).

Mushāraṭah (Goal setting). Musharatah is described with two goals, one is knowledge of the desire goal consistent with rational self (aql). Secondly, the knowledge of the triggers, cues, and variables that reinforce pathological behaviors.

Murāqabah (Self-monitoring). Self-monitoring allows the individual to develop better understanding and functional value of the factors that trigger behavioral reactions in them such as thoughts, physical sensations, emotions attached to specific behavior. This process of observing the self enables the distance between individuals and their behaviors.

Muḥāsabah (Self-evaluation). Self-evaluation involves patients analyzing their behaviors and the associated thoughts of that day, period, or moment and check how they perform to complete or not complete the set goals. So, evaluating the shortcomings and efforts in case of not aligning according to the set goals is insightful for making necessary corrections.

Mu'āqabah (Constructive Consequences). In case of not achieving the set goal the idea of utilizing reinforcement such as reward and punishment can encourage or discourage the desire behaviors is something that one does in response to not having met a goal, the limits of set goals. Rewarding successes is also recommended during therapeutic alliance.

Mu'ātabah (Self-reprimand). Self-reprimand is closely related to tool of consequence (muaqabah), it is applied in response to not completing the set goals. Reprimanding themselves over not fulfilling the set goals by utilizing adaptive shame decreases the likelihood of behavioral repetition. Shaming oneself is the activation of reproaching self (nafs lawwāmah), it is aware of the faults and its critical to self. Muatabah is self-examination to keep oneself in check critically.

Mujāhdah (Exertion). It is related to self-struggle which is referred to as jihād al-nafs (struggle against the self). So, the ultimate goal of self-exertion is to embrace the path of resistance through performing good deeds or actions and withdrawing the bad actions. This process of staying attuned at the positive behaviors or good actions required regular exercise of these six M's.

Fifth Session

IICRA: Goals of Counselling (Cognitive Restructuring, Aql based RIDA model). Cognitive reframing through three stages of nafs: nafs-ul-Ammarah, nafs-ul-

Lawwamah and nafs-ul-Mutmainnah. In order to put these stages into cognitive reframing model, firstly, individual moves from a baseline which is habitual, unreflective, and harmful emotional responses lead to negative life circumstances (ammārah). Secondly, through a guided therapeutic interrogation of the negative cognitions (lawwāmah). Finally, positive reconstruction of these cognitions, lead to acceptance, strength, and tranquility (muṭma'innah). So, this adaptive and positive emotional and behavioral response can be achieved through a four steps model known as RIDA (Recognition, Identification, Decoupling/Distancing, Alternative formulation) (Keshavarzi & Khan, 2018). RIDA is a model that challenges negative cognition through the exercise of aql or intellect. Externalization of negative thoughts, observing the self, and cognitive defusion are the similar concepts found in acceptance and commitment therapy (Harris, 2006).

The first step is recognition which is recognizing the nafs-al-shytan (external source) has spoken resulting negative emotions such as anger, anxiety, guilt or hopelessness. Secondly, identifying the negative automatic cognition (whisper and the purpose of devil in voicing it e.g., the distress, fear or despair), thirdly, decoupling and distancing the cognition through changing person from first to second to third for instance attributing it to external source such as shytan and denying its truthfulness because shytan is a liar. Finally, the alternative formulation of the circumstances is to develop new and positive cognition through therapeutic understanding about self, the Devine and destiny. Ensure rebuilding of positive cognitive emotional process on the basis of this new understanding.

Sixth Session

IICRA: Goals of Counselling (Emotional Regulation). According to the traditional Islamically integrated psychotherapy the emotions originate from aql, ruh and nafs and consolidated in cognitive schemes based on their socio-cultural environments. These experiences adopted as emotional schemas which can be adaptive or maladaptive in facilitating emotional expression or to become a barrier for balanced emotional expression (Keshavarzi et al., 2020). For emotional regulation the first intervention is the emotional attunement and therapeutic presence. Emotional attunement through empathic presence is essential for facilitating the patient's first emotional arousal and awareness. The ability to listen empathically along with attending emotional experiences helps the patient to process emotions. Furthermore, therapeutic attunement requires focus and empathic listening followed by empathic reflection such as having a third ear is crucial for facilitating the experiential work with patient. According to Geller and Greenberg (2012) in order to achieve profound emotional awareness of the patient required the engagement of all senses to being present to attend the emotional experiences including verbal and nonverbal expressions of the patient. Similarly, presence is essential for attending and responding to the patients at one's full potential and being engaged at the moment is effective for therapy.

Deepening/Heightening of Emotions. Articulation of unpleasant or painful emotions can trigger the avoidance of emotional responses. So, the attuning at this emotional experience of the patient and while focus on deepening and heightening of experiences enabled the successful exploration and processing of emotions. The active process of exploring painful emotions will facilitate the patient to remove resistance or blocks for incapacitating the maladaptive emotions and developing adaptive coping for emotions. Moreover, when patients encounter emotional feelings, they struggle to

understand the experience. At that moment a focusing task can help them to shift their focus towards internal bodily experiences and what they intend to do. Guided imagery-based tasks can help to aim such a goal, and it is known as tasawur in TIIP. Empathic understanding, affirmation and reflections are the tools to establish a supportive process for patients and it can also facilitate to deepen and heighten the emotional experiences.

Marker-Oriented Emotion-Focused Psychotherapy. The process yields some markers which are used to heighten the emotional experiences to facilitate emotional expression, processing, and transformation. There are several competing voices such as the voice of nafs ammara, nafs lawama. Nafs ammara is the component of self which actively seeks pleasure are desires for worldly things. This lower self is motivated by desires. These desires can't be repressed fully and when they are not excessive, they are referred to as self. When excessive one may feel suffocation, burdened or have a need to free.

Similarly, the voices from nafs lawama are loudest voices of psyche and having strong consciousness internalized through their environment such as religious education and familial values. These voices are known as the voice of critic. It has adaptive and maladaptive functions, as an adaptive function it restrains the desires of naf ammara and promotes righteousness. If the function is maladaptive or overly active it can overly restrain even the stable personality traits which can cause the feelings of intense internal shame, worthlessness and withdrawn. So, chair work is required for emotional regulation, where critic the critic is put on one chair and experiencing self can be put on another chair for heightening of the emotional experience and through this process the ultimate emotional regulation is achieved making the critic to soften its grip over the nafs ammara.

Seventh to tenth Session

IICRA Goals: Relapse prevention. In these sessions, elements of sessions are relapse prevention skills. The end sessions in the treatment are related to relapse prevention training. For the purpose two sessions were allocated to achieve these goals and the duration for achieving these goals is ten days. Following are the skills to be learned for effective relapse prevention.

Early warning signs. The first step is to identify early warning signs of individuals. For the purpose the information from functional analysis for substance used can be used for identification of internal and external triggers such as craving caused or triggers through high-risk situations, persons and places. Secondly, encouraging individuals to immediately engage in support system from significant others to share about the craving and to seek support from them to stay away from those high-risk situations. Additionally, when the individual is facing early warning signs the person tends to seek those situations and break the stands such as staying in supervision avoiding the persons, they tend be with them while using drugs (Godley, 2001).

Problem-solving skills. Problem solving skills enable individuals to cope the problems without engaging in substance use to deal with such problems. It also enhances the self-efficacy and self-esteem to encounter and positively deal with problems. Technique yields step vise process such as defining the problem clearly and specifically, generating alternative solutions, deciding on one solution and evaluating the outcome. This exercise enables the individual to break down the problem into small steps and to get control over the problem effectively.

Communication skills (Interpersonal Effectiveness). Communication skills are the most important skills because most of the problems are linked with poor communication with significant others. Adaptive emotional expressions are linked with effective interpersonal communications. In SUD communication skills are crucial for ongoing recovery. These skills were also included in these sessions and these goals can be achieved in a week. The goals include assertive communication training as well as handling of crucial conversations which were essential for enhancing interpersonal effectiveness. It also includes understanding statement, taking partial responsibility and offer to help (Godley, 2001).

Relationship with Caregiver. The goals of the session include communication among caregivers and individuals as well as the positive relationship with caregivers. Communication skills learned in previous session can help the individual here also it also engages the individual to improve relationship.

Process of Training

The adaptation process was based on three stages, these stages are known as unfreezing, moving and refreezing (Khalily, 2008b). The first stage unfreezing was explained in first phase, where the challenges and characteristics of the effective treatment model were identified through qualitative study. The second stage was a moving stage. In this stage, four psychologists were selected for training in the Islamically Integrated Community Reinforcement Approach (IICRA). They all are currently working full time in a residential treatment center named Islamabad Rehab Clinic (IRC). Their core responsibilities in the facility are to provide psychological consultations to patients and their families. The minimum qualification of all the participants is M.Sc. in psychology.

They are working with substance used disorders and psychological disorders. Before the introduction of new treatment model, they were using Minnesota model (Butler, 2002) which lacks empirical evidence. The content and methodology of this model is focused on the individual, and less emphasis was given to the environmental and familial patterns related to drug addiction.

The cultural and religious relevancy of the model was not according to the belief patterns of the individuals being treated. Firstly, they were briefed about the need for an evidence-based treatment model which was further indigenized according to the Pakistani culture so that the model can benefit at large. They were informed about the nature of research; hence they showed their willingness in this change process and after their consent they were recruited in this process. Their experience in this field ranges from two years to twelve years in the field of residential treatment facilities.

Moving stage consisted of eight group training sessions. Each group session lasted for one and half hours. All training sessions were conducted at IRC. These sessions were based on CRA protocol, which includes training of CRA along with Islamically integrated psychotherapy. This training was comprised of presentations and demonstrations on CRA protocol which was followed by its manual (Godley, 2001). Secondly, Islamic concept of psychotherapy includes process of change, cognitive restructuring through qur'anic and prophetic sayings, emotional management and elements of human psyche (Keshavarzi et al., 2020) was also covered in this training sessions. Feedback was collected by participants after completing this training which is given below:

- CRA is evidence-based treatment model
- Its required extra efforts for implementing this model

- It seems hard to coming out of the comfort zone
- Religious knowledge is required for understanding the concepts and interventions
- These interventions based on this integrated model are exciting in learning and implementing in therapeutic process.
- A balanced model which focuses on psychological, religious or spiritual and environmental aspects of the patients.
- This model believes in change and initiates internal motivation to accept change.
- Model provides assessment tools and change is measurable.
- Structured way of interventions and time related goals are established.

Next stage of the study was refreezing stage where the model was implemented and the feedback of this stage was also mentioned below. At this stage, continuous supervision was available for the professionals to discuss challenges as they prompt in daily interactions with their patients.

- Spiritual and professional growth for psychologists.
- Spiritual growth was observed along with psychological wellbeing.
- Model was effective for contributing change.
- Goals were established and measurable.
- Insight of illness in patients and establishing rapport was effective.
- Environmental reinforcement for promoting drug free life.
- Incorporates religion in psychotherapy.

- Solution based interventions such as emotional management, cognitive restructuring through Islamic model, and communication skills and intensive relapse prevention training.
- Focuses on maintenance of daily routine.
- Involves significant others in treatment for maximizing long-term recovery.

Sample

The present study was conducted in residential treatment settings. For conduction of RCT, guidelines of good clinical practices were followed (Guideline, 2001). The sample size for this clinical trial was 60 in total (30 for control group and 30 for treatment group) in order to maintain this number, the sample size was extended to 34 for each group in order to get adequate retention of the sample. The retention number of sample was 68 at the time of pre assessment and closed at 59 at the time of last follow up assessment. All participants who were admitted for treatment of SUD with or without comorbid mental disorders were recruited for research. Intervention was administered after the 21 days of detoxification. For recruitment and randomization, it was not applicable to control extraneous variables in a single facility so two sites were selected for this purpose. Selection of sites were based on minimizing extraneous variables by selecting identical residential treatment sites. One site such as Islamabad Rehab Clinic (IRC) was willing to give permission for implementation of IICRA based intervention. Hence, IRC was selected for recruiting treatment group.

The second site was considered for recruiting control group where they were giving traditional treatment in residential setting based on disease model. The site is named Hayat

Rehab Clinic (HRC). Permission for conducting research and recruiting participants was sought out from the authorities. Traditional treatment was termed as treatment as usual which includes detoxification of drugs and duration of detoxification from acute withdrawal consisted of 21 days, during these early days focus was on adjustment to residential treatment along with hygiene and routine related compliance. Afterwards, the focus was on general counselling for drug addiction prevention, twelve steps program, habit formation based on seven habits for highly effective people and life skills training which is mainly delivered through group classes and lectures. Patients' individual sessions are also scheduled with psychologists once weekly, the focus of these individual sessions is to maximize the interaction with family through relationship building and relapse prevention skills. Duration of residential treatment is between 90-120 days.

The treatment group received interventions based on Islamically Integrated CRA (IICRA). These sessions were divided into daily goals including counseling related to hygiene, physical activities, psychotherapy of mental disorders and drug addiction related management. After discharge from residential treatment, they were followed up for six months to check the effectiveness of IICRA in the context of relapse and recovery from SUD as well as from comorbidities. These six months follow up consisted of further three follow up sessions; first session was conducted on the discharge date from the facility, second was on fifth month and third was on sixth month following discharge.

The sample in the present study for clinical trial was based on those diagnosed individuals who were hospitalized in rehab for the treatment of SUD. The age of the sample was varying from 16 years to 60 years, where 24% individuals were from late adolescence, 39% from early adulthood and finally 37% were from middle adulthood. The chronicity of

disease in the sample varies 78% of them were abusing substance between from one year to 10 years and 22% were abusing more than 10 years. Similarly, the rate of relapse or number of treatments within sample was computed as 54% individuals were hospitalized first time and 46% were hospitalized two and more than two times. Additionally, the type of substance abuse was also varying cross the sample which included cannabis, alcohol, pills, heroin, Ice and multiple substance abuse (Alcohol, cannabis and prescribed substances) as well. The gender was mainly male in sample which was 98% and only one participant was female in the sample. Moreover, 75% individuals of the sample were diagnosed with SUD and 25% were also having comorbid mental illness. Hence, the representativeness of the sample was limited to clinical population diagnosed with SUD as well as comorbidities with SUD.

Secondly, the professionals who were providing treatment were not aware of the allocation of the individual in control and treatment group as well as the recruited individuals for the clinical trial. They were responsible for conducting sessions and recording those sessions through treatment forms as well as monitoring the goals whether desired goal is achieved or not. They were also given the treatment protocol schedule for effective treatment adherence. Additionally, panel assessments were planned at both sites for reviewing and addressing treatment related issues faced by professionals as well as the achievement of desired goals of the treatment. These panel assessments were carried out weekly to ensure the engagement of the patients, adherence and fidelity to the treatment protocols. This committee was comprised of four professionals having experience in treatment planning and execution with the minimum educational level of MS in Clinical Psychology.

Besides, for the purpose of comparability of results and to control the extraneous variables, two treatment sites were selected for clinical trial. Both sites were equal in terms of organizational structure which includes residential treatment facility for mental health, same geographical region with outdoor areas, hierarchy of professionals, daily routine of the patients, psychiatrist consultation, outdoor and indoor activities of the patients and length of residential treatment. The professionals engaged in the clinical trial have similar qualification and experience at both facilities.

During this clinical trial, 28 out of 34 participants were retained in the control group and successfully completed the duration of clinical trial. Three participants had withdrawn the treatment after 40 days of hospitalization and one individual passed away after discharge from rehab. The remaining two participants did not continue the follow-up sessions. In the experimental group 31 participants out of 34 had successfully completed the Treatment duration for clinical trial. Two participants had withdrawn the treatment after a month of admission and one participant did not continue after the discharge from the facility.

The sample characteristics and demographic information were mentioned rigorously in the following table.

Table 6

Sociodemographic Characteristics of Participants (N=59)

Baseline Characteristics	***f***	***%***
Age		
Late adolescence (16-24)	14	23.7
Early adulthood (25-34)	23	39
Middle adulthood (35-60)	22	37.3
Late adulthood (61-above)	-	-
Gender		
Male	58	98.3
Female	1	1.7
Marital status		
Single	29	49.2
Married	28	47.5
Divorced	1	1.7
Separate	1	1.7
Education		
Primary	5	8.5
Middle	1	1.7
Matriculation	21	35.6
Intermediate	11	18.6

Graduation	17	28.8
Post graduate	4	6.8
Drug type		
Opioids	11	18.6
Ice	12	20.3
Cannabis	18	30.5
Multiple (Alcohol, cannabis and prescribed substances)	18	30.5
No of relapse		
Zero relapse	32	54.2
One time relapse	11	18.6
Two times relapse	8	13.6
Three times relapse	3	5.1
Four times relapse	2	3.4
More than four times relapse	3	5.1
Duration of drug use in years		
1-5 years	32	54.2
6-10 years	14	23.7
11-15 years	7	11.9
16-20 years	4	6.8
21-25 years	2	3.4
Treatment group		
Experimental group	31	52.5
Control group	28	47.5

Comorbidity		
Psychosis	11	18.6
Neurosis	4	6.8
No mental disorders	44	74.6

The above table shows the important demographical characteristics of the participants. The average age range of the participants was 30.8 and (SD = 7.49). There are four categories of age, and the results indicate that 23.7% of participants are in late adolescence between 16 to 24, early adulthood participants with age range of 25 to 34 are 39%, middle adulthood participants with age range of 35 to 60 are 37.3%. The marital status indicates that 49.2% of people are single, 47.5% are married and 1.7% of the participants are divorced and separate. Level of education depicts that 8.5% are primary, 1.7% are middle, 35.6% are with the education of matric, 18.6% are with intermediate, 28.8% are graduate, and 6.8% are with the education of postgraduate.

Drug types indicate that 18.6% of the participants are opioids users, 20.3% are ice users, 30.5% are cannabis users, and 30.5% are multiple drug users. The number of relapses indicates that 54.2% of the participants have zero or no relapse, 18.6% of the population have one time relapse, 13.6% are relapsed twice, 5.1% are relapsed thrice, 3.4% are 4 time relapsed, and 5.1% have more than five times relapse. Duration of the drug use indicate that 54.2% of the participants have used substances for one year to five years, 23.7% have used substances for six to ten years, 11.9% have used substances for 11 to 15 years, 6.8% have used substances for 16 to 20 years, 3.4% have used substances for 21 to 25 years. Treatment groups indicate that 52.5% are allocated to experimental group and 47.5% were

allocated to control group. Comorbidities indicate that 18.6% are psychotic, 6.8% are neurotic, and 74.6% have no mental disorder.

Instruments

Demographic Information

Demographic details in this study were age, gender, education, marital status, choice of drug, comorbid mental disorder, no. of relapse, and duration of drug use.

Symptoms Check List-90 (SCL-90)

In the present study symptoms check list-90 (SCL-90) was used as an instrument for measuring comorbid mental disorders. It has 90 items and nine clinical subscales (83 items) to measure symptoms of psychopathology. Seven items were additional. It was available in Urdu version which was valid and reliable measure for clinical setting to assess the comorbidities (Shafique et al., 2017). Reliability coefficient of the subscales ranges from .71 to .98. SCL-90 is 5-point Likert scale from 0 = not at all to 4= extremely.

According to Derogatis (1973) and Derogatis et al. (1976) subscales and their respective items along with description is given below:

Somatization. There are 12 items 1, 4, 12, 27, 40, 42, 48, 49, 52, 53, 56, and 58 those measure somatization in the scale. The construct is defined as distress manifested through perceptions based on bodily dysfunction. Symptoms are based on cardiovascular, gastrointestinal, respiratory and other autonomic system as well as anxiety equivalents such as headaches, backaches, pain and discomfort are also included in this subscale.

Obsessive-Compulsive. This subscale has 10 items (3, 9, 10, 28, 38, 45, 46, 51, 55, 65) these items reflect symptoms related to thoughts impulses and actions that are intrusive, compulsive, irresistible and unpleasant for an individual

Interpersonal Sensitivity. Subscales consists of nine items such as 6, 21, 34, 36, 37, 41, 61, 69, and 73. The symptoms based on this factor are related to personal inadequacy and inferiority in relation to other individuals. High level of interpersonal sensitivity is based on self-depreciation, feeling of uneasiness and marked distress while interacting with others. Moreover, self-consciousness and negative expectancies are also related to interpersonal distress.

Depression. There are 13 items in this factor which are 5, 14, 15, 20, 22, 26, 29, 30, 31, 32, 54, 71, and 79. The subscale reflects the symptoms of major depressive disorder that includes dysphoric mood and affect congruent with withdrawal of interest in activities, lack of motivation and energy. It also includes cognitive and somatic symptoms as well as feelings of helplessness and suicidal ideation.

Anxiety. This subscale has 10 items 2,17, 23, 33, 39, 57, 72, 78, 80, and 86 which indicates reflections of behaviors such as tensions, restlessness and nervousness as manifestation of anxiety. It also includes somatic signs such as trembling.

Anger/Hostility. There are six items in this subscale (11, 24, 63, 67, 74, 81). The presence of anger and hostility is important for clinical decisions. In this dimension three behaviors of hostility thoughts, feelings and behaviors are included. Items measure feelings of annoyance, urge of breaking things, frequent arguments and temper outbursts.

Phobic Anxiety. This subscale comprises of seven items which are 13, 25, 47, 50, 70, 75, and 82. The dimensions include symptoms which are termed phobic anxiety states or also known as agoraphobia. These fears are related to travel, crowds, public spaces and open spaces. Apart from that, many scales representing social phobic behavior are also included.

Paranoid Ideation. The subscale has six items (8, 18, 43, 68, 76, 83). This dimension of paranoid ideation is derived from paranoid behaviors. So, the prime characteristic of paranoid ideation is the mode of thinking such as projective thinking, suspiciousness, delusions, hostility, grandiosity and loss of autonomy.

Psychoticism. Psychoticism's subscale comprises of 10 items (7, 16, 35, 62, 77, 84, 85, 87, 88, 90). The subscale includes first rank symptoms of schizophrenia such as auditory hallucinations, thought broadcasting, external thought control and external thought insertion along with other less significant signs of psychotic behaviors and schizoid lifestyles are also represented in this construct.

Addiction Recovery Questionnaire Urdu (ARQ-U)

In the present study, recovery was measured through Addiction Recovery Questionnaire Urdu (ARQ-U) by taking the sum of participants response. ARQ-U has 12 items, and it is a four-point rating scale such as 0 = not at all, 1 = rarely, 2 = often, 3 = all the time. The maximum score is 36. There are Four items needed to be reverse scored Q.5, Q.6, Q.8 and Q.9 (Truby, 2020). ARQ was developed to measure recovery and can be used in outcome assessment with high face validity (Iveson-Brown & Raistrick, 2016).

ARQ-U has three subscales:

i. Normal living (items 1, 2, 3, 4, 5)
ii. Abstinence (items 6, 7, 8, 9)
iii. Positive expectancy (items 10, 11, 12)

Follow up in outcome assessment

For outcome assessment urine toxicology report and ARQ was carried out to assess the outcome of IICRA related treatment.

Research Design

In the present study, Research design of the study consisted of two-arms, single-blind randomized controlled trial (RCT). While Randomized Control Trial (RCT) consisted of two groups: Active Treatment (IICRA) group and Control group. Participants and outcome assessors were kept blind throughout the intervention. There were two arms in research design:

Experimental: Treatment Group

Experimental group received the Islamically Integrated Community Reinforcement Approach (IICRA) which is based on psychotherapeutic sessions after the completion of drugs related detoxification (after 21 days since hospitalization) for 90-120 days in residential treatment.

Control Group: Treatment as Usual (TAU)

This group received treatment as usual which includes detoxification of drugs and duration of detoxification acute withdrawal consisted on 21 days, during these early days focus on adjustment to residential treatment along with hygiene and routine related compliance. Afterwards, the focuses on general counselling for drug addiction prevention, twelve steps program, habit formation based on seven habits for highly effective people and life skills training which is mainly delivered through group classes and lectures. Patients' individual sessions were also scheduled with psychologists once weekly, the focus of these individual sessions was to maximize the interaction with family through relationship building and relapse prevention skills. Duration of residential treatment is between 90-120 days.

In the present study, 68 patients were recruited from residential treatment. After the recruitment patients were allocated randomization to control and treatment group.

Computer generated random numbers were assigned and participants were randomly allocated to experimental and control groups. Control group received treatment as usual which includes detoxification of drugs, general counselling for drug addiction prevention, twelve steps program and life skills training. While the experimental group received IICRA based intervention. These interventions were based on ten sessions and the content of sessions was also described above. Duration of session was 45-60 mints per session to attain weekly goals. Baseline assessment was also conducted before introducing the interventions. SCL-90 (for comorbid mental disorders) and urine toxicology testing (for drug addiction) was conducted during baseline assessment. Outcome assessment consisted of ARQ scale to measure the recovery. After the completion of intervention there were three follow up assessments in which urine toxicology testing, and ARQ scale were conducted along with clinical interview and care givers' feedback.

Results

Table 7

Psychometric Properties for Scales (N=59)

Scale	*K*	*M*	*SD*	Range	Cronbach's α
SCL 90 (Baseline)	90	98.40	53.12	12-242	0.96
SCL 90 (Post assessment)	90	27.96	35.29	1-164	0.98
ARQ (Baseline)	12	21.74	4.56	11-31	0.45
ARQ (Post Assessment)	12	21.88	4.84	10-30	0.73
ARQ (1st Follow up)	12	21.42	6.28	10-31	0.84
ARQ (2nd Follow up)	12	21.62	6.86	10-32	0.87

Note: K = no of items, M = mean, SD = standard deviation, SCL = Symptom Checklist 90, ARQ = Addiction Recovery Questionnaire

The above table explains the psychometric properties of important variables of the study. The value of Cronbach's α indicates that all the research scales have good reliability as all the values are falling in the acceptance region. The α = 0.96 and α = 0.98 for Symptom Checklist which was used to assess the comorbidity at baseline and post assessment indicate that the symptom checklist is highly reliable. The α value for addiction recovery questionnaire for baseline, post assessment, 1st follow up and 2nd follow up indicate that this scale is also reliable.

Table 8

Comparison Between Pre and Post Assessment for Comorbid Mental Disorders (N=59)

Scale	Pre assessment		Post assessment		*t*(58)	*p*	Cohen's d
	M	*SD*	*M*	*SD*			
Somatization	10.644	9.652	2.779	5.423	8.170	.000	1.004
OCD	12.169	7.124	4.203	4.87	9.150	.000	1.304
Interpersonal sensitivity	11.118	6.982	3.237	3.654	9.659	.000	1.414
Depression	16.457	9.359	4.423	5.226	10.218	.000	1.587
Anxiety	7.241	5.965	1.965	3.801	8.179	.000	1.054
Anger / hostility	5.847	4.929	1.525	1.932	7.183	.000	1.154
Phobic anxiety	4.355	4.947	1.474	2.830	5.462	.000	0.714
Paranoid ideation	9.016	5.293	2.339	2.382	9.591	.000	1.626
Psychoticism	8.644	6.370	2.288	4.043	8.253	.000	1.191

Note: OCD (obsessive compulsive disorder), M = mean, SD = standard deviation

The above table explains the comparisons between pre and post assessment of different psychological disorders. The findings of the research indicate that all psychological disorders were treated effectively with the interventions of IICRA. The computed value of t (58) = 8.170, $p < .00$ for somatization, t (58) = 9.150, $p < .00$ for Obsessive compulsive disorder, t (58) = 9.659, $p < .00$ for interpersonal sensitivity, t (58) = 10.218, $p < .00$ for depression, t (58) = 8.179, $p < .00$ for anxiety, t (58) = 7.813, $p < .00$ for anger / hostility t (58) = 5.462, $p < .00$ for phobic anxiety, t (58) = 9.591, $p < .00$ for paranoid ideation, and t (58) = 8.253, $p < .00$ for psychoticism with significant mean

differences indicate that the treatment model of the IICRA has treated all the mentioned psychological disorders effectively.

Figure 1

Pre and Post Assessment of Different Psychological Disorders

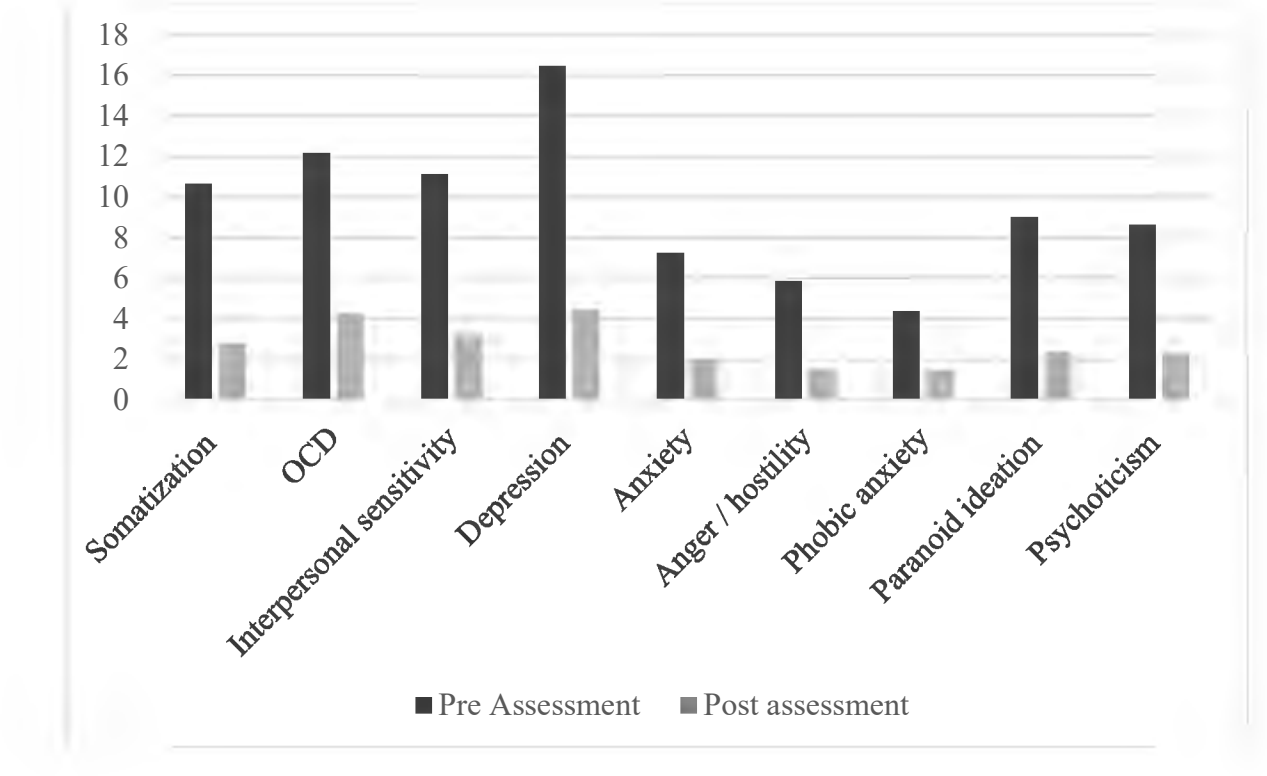

Figure one illustrates the comparisons of mean between different psychological disorders. It is found that there are significant mean differences in the pre and post assessment of different psychological disorders which indicates that there is clear reduction in the symptoms of the different psychological disorders. At baseline assessment, which is pre assessment the manifestation of symptoms was significantly high as compared to post assessment where the remission form symptoms of different psychological disorders are significantly evident in the figure.

Table 9

Comparison Between Experimental and Control Group on Treatment of Comorbidity (N=59)

Scale	Control Group		Experimental group		*t*(58)	*p*	Cohen's d
	M	*SD*	*M*	*SD*			
Somatization Pre	11.821	12.012	9.580	6.912	.899	.378	1.004
OCD Pre	11.357	7.785	12.903	6.513	.830	.410	1.304
Interpersonal sensitivity Pre	9.178	7.493	12.871	6.086	2.086	.041	1.414
Depression Pre	13.607	8.731	19.032	9.289	2.304	.025	1.587
Anxiety Pre	6.714	6.671	7.645	5.225	.600	.551	1.054
Anger / hostility Pre	4.214	3.510	7.322	5.582	2.528	.014	1.154
Phobic anxiety Pre	4.857	5.707	3.903	4.190	.737	.464	0.714
Paranoid ideation Pre	6.928	3.962	10.903	5.682	3.084	.003	1.626
Psychoticism Pre	7.821	6.847	9.387	5.919	.942	.350	1.191
Somatization Post	5.714	6.781	0.129	0.427	4.580	.000	1.004
OCD Post	7.357	5.458	1.354	1.198	5.971	.000	1.304
Interpersonal sensiti post	4.964	4.541	1.677	1.399	3.836	.000	1.414
Depression Post	7.178	6.388	1.935	1.611	4.420	.000	1.587
Anxiety Post	4.571	5.301	0.193	0.401	4.587	.000	1.054
Anger / hostility Post	2.357	2.407	0.774	0.883	3.418	.000	1.154
Phobic anxiety Post	2.964	3.564	0.129	0.340	4.411	.000	0.714
Paranoid ideation Post	3.500	2.782	1.290	1.270	3.988	.000	1.626
Psychoticism Post	4.464	5.051	0.322	0.475	4.547	.000	1.191

Note: OCD (obsessive compulsive disorder), M = mean, SD = standard deviation

The above table explains the comparisons between experimental and control group for the treatment of different psychological disorders on pre and post assessment. The findings of the research indicate that all psychological disorders were treated effectively with the interventions of IICRA. The computed value of t (58) = -4.580, p =.00 for somatization post, t (58) = -5.971, p = .00 for Obsessive compulsive disorder post, t (58) = -3.836, p = .00 for interpersonal sensitivity post, t (58) = -4.420, p = .00 for depression post, t (58) = -4.587, p = .00 for anxiety post, t (58) = -3.418, p = .00 for anger / hostility post t (58) = -4.411, p = .00 for phobic anxiety post, t (58) = -3.988, p = .00 for paranoid ideation post, and t (58) = -4.547, p = .00 for psychoticism post with significant mean differences indicate that the treatment model of the IICRA has treated all the mentioned psychological disorders effectively in experimental group.

Figure 2

Comparisons Between Control and Experimental Group

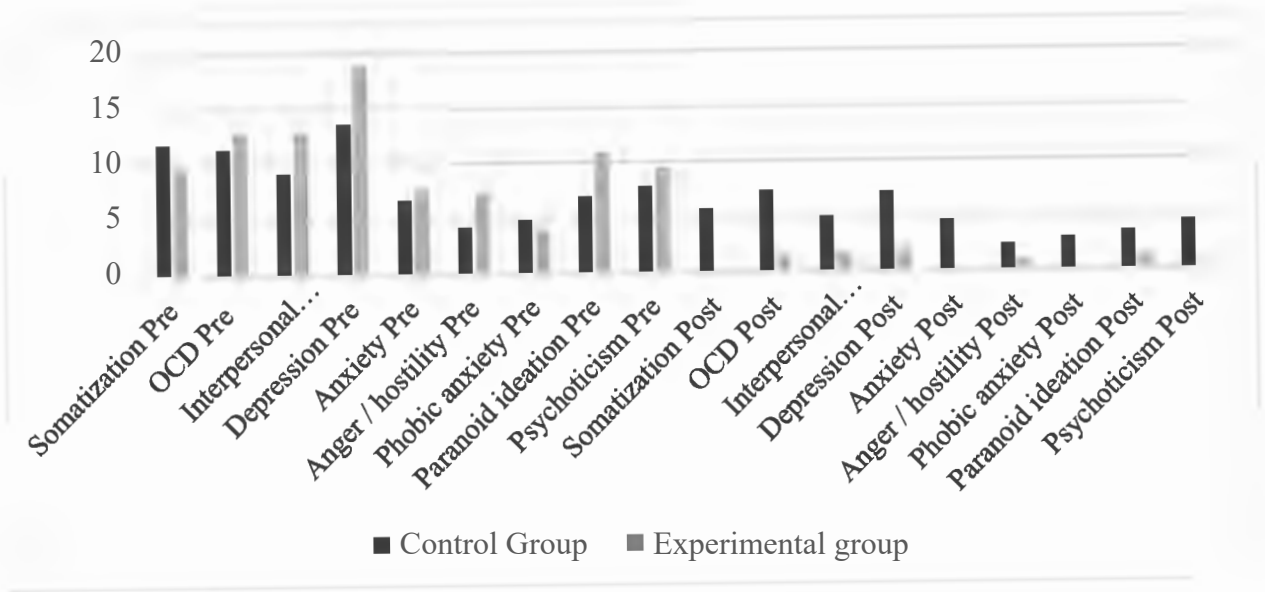

Figure two depicts the comparisons among control group and experimental group in terms of comorbid mental disorders. Figure two obviously expresses the significant differences in post assessment of comorbid mental disorders which means the participants in experimental group expressed better improvement in the remission of symptoms as compared to control group.

On the contrary, remission was also present in pre and post assessment of control group in terms of comorbid mental disorders however, these differences were marginal and not significant when compared to experimental group.

The trend in figures illustrated significant improvement in terms of IICRA based interventions in experimental group.

Table 10

Analysis of Variance (N=59)

Measure	Experimental Group		Control Group		*F (1,57)*	*p*	η2
	M	*SD*	*M*	*SD*			
ARQ (Baseline)	21.225	4.349	22.321	4.815	0.843	.362	.10
ARQ (Post)	23.322	4.069	20.285	5.191	6.316	.015	.10
ARQ (1st follow up)	24.612	4.876	17.892	5.826	23.232	.000	.29
ARQ 2nd follow up)	26.000	5.531	16.785	4.573	48.018	.000	.46

Note: ARQ-Urdu (addiction recovery questionnaire translated in Urdu), M = mean, SD = standard deviation

Table 10 explains the mean differences between the experimental and control group for the efficacy of the treatment plan based on IICRA model. The results of the study F = 0.843, p = .362 for recovery from SUD also depict that there was no significant improvement in terms of recovery between experimental group and control group in the baseline. The computed results for Post assessment of recovery F = 6.316, p = 0.015, first follow up F = 23.232, p = .000 and for the second follow up F = 48.018, p = .000 indicate that intervention based on IICRA significantly contributed to recovery from SUD in post assessment, first and second follow up of experimental group as compared to the control group in maintaining recovery. Hence, the recovery among experimental group was

significantly better and long-term which shows the interventions based on IICRA had better efficacy as compared to treatment as usual.

Figure 3

Comparisons of Comorbid Mental Disorders and Recovery from SUD

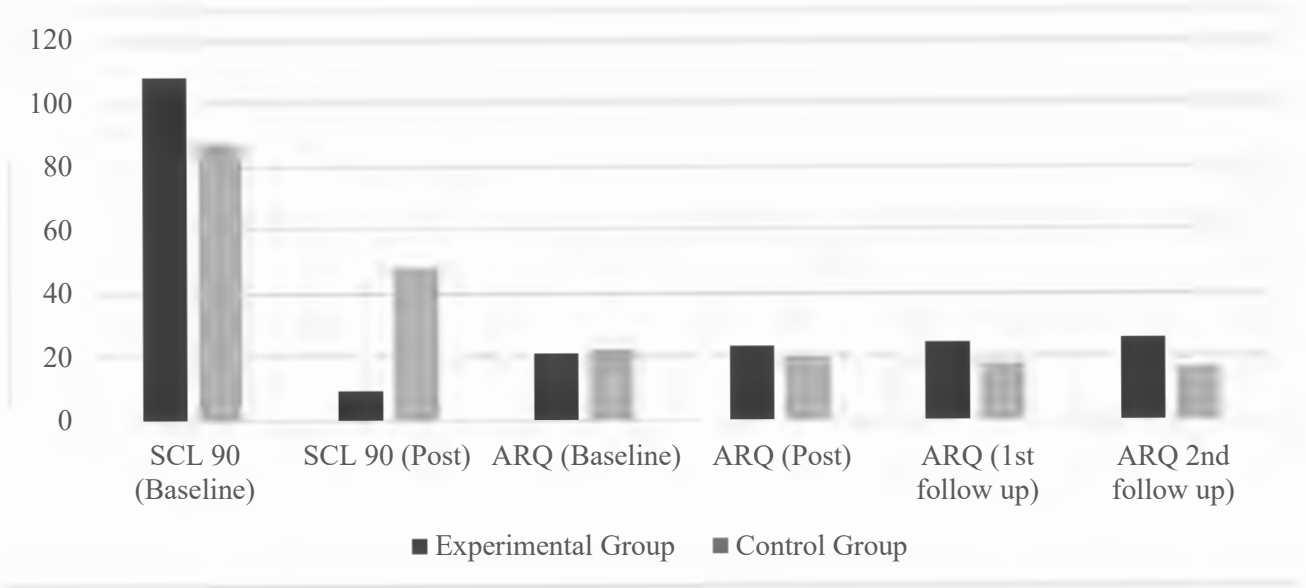

Figure three indicates the comparisons of mean differences among experimental and control groups in relation with different comorbid mental disorders and recovery from SUD. The findings of mean comparisons depict in the figure that there are significant mean differences in experimental and control groups for the treatment of comorbid mental disorders however the symptoms were still high among the participants in control group. In the experimental group the marked difference was illustrated in the figure.

Similarly, the trend of recovery from SUD in control group seemed stagnant at subsequent follow up assessments however, the trend in experimental group was opposite as depicted in the figure.

Discussion

In this dissertation, study I was the need assessment where the challenges of disease model were identified as well as the need of an evidence-based treatment modality. Substantial findings and challenges were identified during unfreezing stage faced by experts. In study II, the instrument ARQ was translated into Urdu language. Reliability, content validity and analysis and CFA was conducted on ARQ-U.

The present study aimed to investigate the efficacy of IICRA for the treatment of SUD where CRA was adapted indigenously and also incorporated Islamic interventions from Islamically Integrated Psychotherapy. Moreover, the impact of IICRA was also determined on co-morbid mental disorders in SUD.

The demographic data of the participants in this clinical trial for determining the efficacy for the IICRA in table six shows the important demographical characteristics of the participants. The average age range of the participants was 30.76 and (SD = 7.49). There are four categories of age (Newman & Newman, 2017), and the results indicate that 23.7% of participants were in late adolescence between 16 to 24, early adulthood participants with age range of 25 to 34 were 39%, middle adulthood participants with age range of 35 to 60 were 37.3%. Seventy six percent of the individual with SUD were from early and middle adulthood (25-60) which was consistent with past research as well (Batool et al., 2017; Muhammad, 2022; Naz et al., 2011; Sanni, et al., 2021).

According to McLellan (2017) 85% of the individuals were adolescents those got the diagnosis for SUD and age-related prevalence was also reported by UNODC (2018) and Sau et al. (2013) which indicated the similar patterns of prevalence of SUD in relation with age cohorts in the present study. They reported that drug abuse was higher among

those who were between 18 years to 25 years old. Moreover, age and gender related prevalence of cannabis, alcohol, opioids and tobacco was reported in research which indicated that higher rates of substance use, and SUD were investigated among males as compared to females. Similarly, the rate of SUD was declined as age progress until 80 years and use of tobacco, cannabis and alcohol was also higher in male. Use of alcohol in males in twenties was higher as compared to females and it decreased steadily hence very few males and females reported the use in 75 years of age, similarly, cannabis use disorder was also at high rate in age 18 and steeply decreased in age 30 and stayed at low rates at rest of the ages. For opioids use disorder the trend declined as age progress but in males it was higher in age between 22-28 and females have higher rate than males in late ages 68-77 (Vasilenko et al., 2017).

The levels of education in participants were low in general 64.4% were below graduation and unmarried substance users were 49.2%. The percentage of more than five years of substance use was 45.8% (Batool et al., 2017; Malik & Sarfaraz, 2011; Naz et al., 2011).

The types of illicit substance use indicate that cannabis (30.5%) and multiple substances (30.5%) were most commonly used by the participants. Ice (methamphetamine, 20.3%) were also higher among substance users and lastly opioids use was also at 18.6% among the participants (Batool et al., 2017; Khalily, 2010; Malik & Sarfaraz, 2011; Naz et al., 2011; Vasilenko et al., 2017). Similar trends were also reported in past research indicating that the data from 28 states of Europe, along with Norway and Turkey that use of amphetamine and ecstasy among individual under aged 35 is two to three times higher than older individuals. Additionally, the lifetime use of cannabis among young individual

aged under 35 is much higher, these findings are also consistent with the cannabis use in present study which was reported as 32% that indicates the cannabis is most common among substance users. Data from Plurinational State of Bolivia showed that the recent use multiple substances are significantly higher among the age group 18-24 than among those in other age group 36-50. According to the European Monitoring Centre for Substances and Drug addiction, the concurrent use of more than one substance is the characteristic of young individuals as compared to older individuals and it is more common as recreational and regular drug use. It also involves more established patterns of multiple substance use which is further linked with patterns such as increased risk of long-term problems, risk taking through binge drinking of alcohol or binge use of stimulants at parties or in group settings (UNODC, 2018).

The rate of relapse among participants in the present study ranged from no relapse (first time in treatment) to more than five times which indicates that 54.2% of the participants have no relapse (first time in treatment) and 45.8% participants were relapsed one time and more (Batool et al., 2017; Sau et al., 2013). Besides, the relapse rate was also evident by past research conducted by Sau et al. (2013) which showed that 31% of the sample was based on relapsed individuals. Duration of the drug use in present study ranges from one year to 25 years of use which indicates that 54.2% of the participants have used substances for one to five years and 45.8% have used substances more than five years (Batool et al., 2017). However, Sanni et al. (2021) reported the prevalence of relapse 59.1% among substance users from residential treatment centers in Nigeria.

Psychometric properties of the scales used in the present study were also mentioned in Cronbach's α coefficient for reliability. The Cronbach's α reliability for SCL-90 for pre

assessment at baseline was 0.96 and for post assessment it was 0.98 which shows good reliability of the scale. The established reliability of SCL-90 was reported by Shafique et al. (2017) while translating in to Urdu language in Pakistan also reported that the reliability of SCL-90 ranges from α = 0.71 to α = 0.98. hence the calculated value of reliability of SCL-90 for present study also consistent with previous research. Moreover, the Cronbach's α reliability for ARQ was also calculated, it ranges from α = 0.45 to α = 0.87 at different levels of assessment which includes baseline assessment (α = 0.45), post assessment (α = 0.73), first follow up (α = 0.84) and second follow up (α = 0.87). So, in this study Urdu translated version of ARQ was used for measuring recovery of 140 participants, the scale's reliability was reported as α = 0.60 (Saghir et al., 2023). At baseline assessment, the reliability of the scale was low as compared to established reliability at the stage of translation and adaptation of the ARQ. The first reason of getting low reliability at baseline assessment was the sample size, as in present study the sample was 59, secondly, the number of items were 12 in ARQ. Moreover, the trend of low reliability is because of low number of items in the scale which are enough to measure recovery according to the claim of Taber (2018), adding items can raise the coefficient of Cronbach reliability but that can cause redundancy which is inefficient. Additionally, the pattern of the instrument is having different subscales that measure different constructs as well. The interpretation of the scale and ability to its interpretable can serve the purpose even with low α reliability (Taber, 2018).

In the present study it was hypothesized that IICRA will have high efficacy to treat comorbid mental illness. So, in the study the efficacy of the treatment was analyzed while comparing the pre and post assessment of the participants with respect to comorbidity. The

percentage of the participants depicted that 18.6% of the patients were diagnosed with psychosis, 6.8% were experiencing neurosis related disorders as comorbid mental disorders, and 74.6% were having no comorbid mental disorders with SUD. These results were consistent with past research (Batool et al., 2017; Volkow, 2001) reporting 12-month prevalence of mental illness with SUD was 29% (Butler et al., 2011; Kingston et al., 2017). Additionally, the pre and post assessment of comorbidity showed significant differences in term of treatment efficacy while treating these co-occurring disorders such as Somatization, OCD, Interpersonal sensitivity, Depression, Anxiety, Anger / hostility, Phobic anxiety, Paranoid ideation and Psychoticism. This signifies that the IICRA has significant impact in the treatment of comorbid mental disorders in residential treatment. These findings were consistent with the previous research conducted by Godley et al. (2014) and Khalily et al. (2023) while comparing the treatment outcome through utilizing adolescent community reinforcement approach with co-occurring problems, and indigenously adopted community reinforcement approach for cannabis users as outpatients. This research reported the significant improvement in psychological cooccurring problems (e.g. depression, anxiety, stress and quality of life).

Likewise, the comparison between control group and experimental group in relation with comorbid mental disorders showed highly significant improvement in experimental groups. The impact of IICRA was significantly evident that the comorbid mental disorders were improved significantly in experimental group at post assessment. However, the marginal differences were seen in some of the subscale of SCL-90 such as interpersonal sensitivity, depression, and anger/hostility but the differences were significant in paranoid ideation among treatment group at baseline assessment, which

suggested that the severity of comorbid mental illness with SUD among control group and experimental group was not equal due to this the marginal differences were detected in pre assessment as well. Overall results for comorbid mental disorders with SUD were significantly improved in experimental group during residential treatment as compared to control group (Khalily et al., 2023). The elements of IICRA model such as functional analysis for substance use and prosocial behaviors, happiness scale, early warning signs, effective coping skills and relapse prevention were significantly helpful for treating SUD. Moreover, behavioral modification based on six Ms model, emotional regulation and RIDA model for cognitive restructuring were attributed for the contribution of significant differences in SUD with comorbid mental illness as compared to treatment as usual.

The rate of recovery from SUD was also significantly high in the experimental group and it was also significant during follow up sessions as well. Recovery was measured and monitored throughout six-months, IICRA demonstrated significant efficacy in term of recovery from SUD with and without comorbid mental disorders. Hence, the hypotheses of the present study that the author expects SUD patients treated with IICRA will have significantly higher rate of recovery to conventional treatment, patients treated with IICRA will continue to express higher recovery rates over six months follow up compared to conventional method of treatment, and the investigator also expects IICRA will have higher efficacy to conventional treatment, treating comorbid mental illnesses were accepted during hypotheses testing. The results of the present study were also consistent with clinical trial conducted recently with outdoor cannabis users. In this trial, CRA was adapted indigenously and applied for only cannabis users without comorbid mental disorders (Godley et al., 2014; Khalily et al., 2023).

Differences in IICRA as compared to conventional treatment in control group were significant which show that the interventions in the IICRA model were effective. The rapport building with client and behavioral activation at early phase of treatment were significant for insight development. This was further facilitated by denial management and identification of defense mechanisms. Functional analysis of using behavior or substance use helps the participants to identify triggers for substance use in details such as exploring thoughts emotions and physical sensations related to substance use. Similarly, it helped them to evaluate short term positive consequences and long-term negative consequences for cost evaluation. Happiness scale was also important for the patients to identify the different dimensions of life where they feel that there is a need to work on a specific area after identifying it through the happiness scale. Functional analysis of prosocial behaviors was also effective to identify positive activities to fill the gap of substance use and to alternate pleasure through positive activities to change environmental factors positively. Emotional management through deepening and heightening of emotion while identifying the origin of the emotion such as cognition (aql), behavioral inclination (nafs) and soul (ruh) had significant effect on the emotional regulation. Finaly, the relapse prevention skills were based on early warning signs, refusal training, behavioral modification through six Ms and interpersonal effectiveness was attributed to maintain recovery for long term (Godley, 2001; Gorski & Miller, 1986; Keshavarzi et al., 2020; Khalily, 2008a).

Limitations of study I

1. The sample of the study was limited because of availability of the practicing experts with the knowledge and skills of disease model being used for the treatment of SUD.
2. Due to limited sample size the generalizability of the findings is low.
3. Addiction is a complex and multifaceted disease so in-depth understanding of SUD treatment is a challenge.
4. Although the probing questions were incorporated during interview, adding few more questions for exploring the micro aspects of challenges of disease model can enhance the explorative aspects of the study.

Limitations of Study II

1. Sample of the study was limited to 140 participants which will affect the generalizability.
2. The reliability of the ARQ was not previously established.
3. The sample of the study is based on only substance users who are hospitalized. A cross competitive sample based on recovering patients from SUD can enhance the psychometric properties in a better way.
4. The content validity of the scale was determined through CVI in the present study, another measure of recovery should be considered for construct validity of the scale through measuring convergent validity.

Limitations of study III

1. The retention of the participants was challenging. Although the participants were in residential treatment yet some of them left before the completion of treatment.

2. Treatment engagement was another issue which was resolved by the induction of the indoor and out-door activities such as gym, physical activities, group sessions, indoor carrom board, table tennis, etc.
3. The attendance in follow up sessions was also difficult mostly patients were reluctant for attending follow up so engaging caregivers was helpful in this regard.
4. The follow up duration for monitoring the recovery in the study was six months. For long term recovery and evaluation of efficacy of treatment model, the duration should be extended so that the transition during recovery should be highlighted.
5. Excessive turnover of the professionals was another hallmark in taking interviews and enrolling in continuous professional development.

Recommendations and Suggestions

Future research should aim to replicate this study on larger sample and should focus on long-term recovery from SUD. Research should also explore the efficacy of the IICRA intervention while considering comparison with psychological disorders in order to check the significance with those having comorbid mental disorders in SUD. Moreover, a comparative study would be carried out between SUD and SID (Substance Induced Disorders) as well as out-door settings would be effective for drawing inferences relative to residential settings. In order to study relapse in depth focus should be placed over the transitions throughout follow up sessions. Lastly, the involvement of caregivers in treatment should be measured so that the impact in term of social support should be determined and explained in future for maximize the impact of IICRA for long term recovery and preventing relapse.

Ethical considerations

Studies in the dissertation involve human participants, the ethical considerations were reviewed and approved by Departmental ethics committee (Board of Advance Studies and Research, BASR) at the International Islamic University, Islamabad (F. No. IIU/2021-Exams-6,511). Written informed consent to participate in these studies was provided by the participants and their legal guardians. Anonymity, confidentiality, right to withdrawal from studies and no physical and emotional harm were ensured. No compensation was provided to control group but they were guided about the important findings and strategies of experimental group in follow up sessions.

Conclusion

Need for an effective and evidence-based model explored in study I. Important challenges of disease model are highlighted such as no evidence-based practices, and no religious and cultural adaptation were reported in disease model. Study also indicates the lack of uniformity or structured treatment plan within the disease model as well as limited research work for supporting the efficacy of disease model. in study II, ARQ was systematically translated in to Urdu language and important psychometric properties such as reliability and content validity were reported along with confirmatory factor analysis. Findings of the study III based on RCT show that patient treated with IICRA in experimental group have demonstrated significant recovery rate. The recovery trend was also significant in experimental group throughout follow up sessions as well as IICRA was effective in term of retention rate of patients in treatment as compared to TAU. It was also determined that the remission of symptoms from various psychological comorbid disorders was significantly higher among experimental group as compared to TAU in control group.

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Annexure A

اجازت نامہ

یہ تحقیق بین الاقوامی اسلامی یونیورسٹی کے شعبہ نفسیات کے تحت کی جا رہی ہے۔ اس تحقیق میں ایک نئے طریقہ علاج کے ذریعے تجرباتی تحقیق کی جائے گی۔ تمام تر حاصل شدہ معلومات کو مکمل طور پر صیغہ راز میں رکھا جائے گا۔ آپ سے التماس ہے کہ آپ اپنی مرضی سے اس تحقیق کا حصہ بنیں اور آپ کو اس تحقیق سے کسی بھی مرحلے پر الگ ہونے کا پورا حق حاصل ہو گا۔ آپ کا علاج اس نئے طریقہ علاج کے مطابق کیا جائے گا۔ یہ طریقہ علاج کمیونٹی ری انفورسمنت اپروچ کے اصلوں پر مبنی ہے۔

اس اجازت نامہ پر آپ کے دستخط کی ضرورت ہو گی۔ آپ کے تعاون کا شکریہ۔

مورخہ:----------

Annexure B

Demographic Information

Age: _____ Gender: _____

Marital status: _____ Education: _____

Choice of Drug: _____ No. of Relapse: _____

Duration of Drug use: _____ Comorbid Mental Disorder: _____

Annexure C

Annexure C shows the four translations in Urdu language along with stem statements of ARQ.

یہاں کچھ چیزیں ہیں جو لوگوں نے اپنی بحالی کے لیے ضروری سمجھی ہیں۔ براہ کرم ذیل میں ہر ایک سوال کا جواب دیں۔

پچھلے مہینے میں آپ کے پاس۔۔۔۔

یہ کچھ چیزیں ہیں جو لوگوں نے اپنی بحالی کے لیے اہم سمجھی ہیں۔ براہ مہربانی نیچے دیے ہوئے سوالات کے جوابات دیں۔ پچھلے مہینے

آپ نے۔۔۔۔

درج ذیل چند ایسی چیزیں بیان ہیں جو کہ منشیات سے بحالی میں لوگوں کو اہم لگی ہیں۔ براہ مہربانی نیچے دیے گے ہر سوال کا جواب دیں۔

پچھلے مہینے کے دوران کیا آپ کے۔۔۔۔۔

بالکل نہیں	شاذونادر ہی	اکثر	ہر وقت

Items	Translation A	Translation B	Translation C	Translation D
1	مناسب طریقے سے زندگی گزارنے کے لیے کافی رقم تھی؟	آپ کے پاس اچھی طرح سے رہنے کے لیے خاصی رقم تھی؟	ضروریات زندگی بسر کرنے کے لیے کافی رقم موجود تھی؟	مناسب طریقے سے زندگی گزارنے کے لیے کافی رقم تھی؟
2	کیا آپ کی زندگی میں اہم لوگ آپ پر بھروسہ کرتے ہیں؟	آپ نے اہم لوگوں کو اپنے اوپر بھروسہ کرتے ہوئے پایا؟	آپ کی زندگی میں موجود اہم لوگوں نے آپ پر اعتماد کیا؟	پتہ چلا کہ آپ کی زندگی کے اہم لوگوں نے آپ پر بھروسہ کیا ہے؟
3	کیا آپ مناسب رہایش گاہ میں قیام پذیر ہیں؟	آپ موزوں ترین رہایش میں رہتے رہے ہیں؟	مناسب رہایش میں قیام پذیر رہے؟	رہایش کے لیے مناسب جگہ ہے۔

روزمرہ کے کاموں اور سرگرمیوں کو برقرار رکھتے ہوے۔	روزمرہ کے کام کاج اور سرگرمیاں جاری رکھی رہی؟	روزمرہ کی سرگرمیاں اور کام کرتے رہے ہیں؟	کیا آپ روزمرہ کے کاموں اور سرگرمیوں کو برقرار رکھتے ہیں؟	4
مجرمانہ سرگرمیوں میں ملوث رہاہے۔	مجرمانہ سرگرمیوں میں ملوث رہے؟	مجرمانہ حرکتوں میں ملوث رہے ہیں؟	آپ کبھی مجرمانہ سرگرمیوں میں ملوث رہے؟	5
شراب اور منشیات کا استعمال کرنے والے لوگوں سے گھلنا ملنا۔	ایسے لوگوں کے رابطے میں رہاہوں جو شراب نوشی اور دیگر منشیات کا استعمال کرتے رہے؟	ان لوگوں کے ساتھ ملتے رہے ہیں جو کہ شراب یا منشیات کا استعمال کرتے رہے ہیں؟	کیا آپ ایسے لوگوں سے رابطے میں جو شراب اور دیگر منشیات کا استعمال کرتے رہے ہیں؟	6
شراب اور منشیات کا استعمال نہ کرنے والے کے ساتھ دوستی۔	ایسے لوگوں کا دوست رہاجو شراب یا منشیات کا استعمال نہیں کرتے؟	ان لوگوں کا دوست رہے ہیں جو شراب یا منشیات کا استعمال نہیں کرتے؟	آپ کی دوستی ایسے لوگوں سے ہے جو شراب اور دیگر منشیات کا استعمال نہیں کرتے ؟	7
شراب اور دیگر منشیات سے پرہیز	شراب اور دیگر منشیات سے مکمل پرہیز میں رہا؟	شراب یا منشیات کے استعمال سے پرہیز کرتے تھے؟	کیا آپ شراب اور دیگر منشیات سے مکمل پرہیز میں رہے ؟	8
آپ کی منشیات یا دماغی صحت کے لیے دوا لی؟	منشیات یا ذہنی امراض کی ادویات لیتا رہا؟	اپنی منشیات یا ذہنی امراض کے لیے ادویات کا استعمال کرتے تھے؟	کیا آپ نے ایسی تجویز کردہ ادویات لی جن کا نفسیاتی اثر ہوتا ہے؟	9

مستقبل کے بارے میں ایک مثبت احساس تھا؟	مستقبل سے متعلق مثبت احساس تھا؟	مستقبل کے بارے میں مثبت احساسات تھے؟	کیا آپ کو مستقبل کے بارے میں مثبت احساس تھا ؟	**10**
اپنے بارے میں عام طور پر اچھا محسوس کیا؟	اپنے بارے میں عموماً اچھا محسوس کیا؟	عام طور پر اپنے بارے میں اچھا محسوس کرتے تھے؟	آپ اپنے بارے میں عام طور پر اچھا محسوس کرتے ہیں؟	**11**
پینے یا منشیات لینے کے دباو کے خلاف مزاحمت کرنے کا اعتماد تھا جو آپ نہیں چاہتے تھے؟	شراب یا منشیات جنہیں آپ نہیں چاہتے تھے استعمال کے دباو کی مزاحمت پر پُر اعتماد رہے؟	شراب یا منشیات کے استعمال کے دباؤ کے سامنے مزاحمت پر یقین تھا؟	آپ کو ایسے حالات سے نمٹنے کا یقین تھا جہاں آپ منشیات پی سکتے تھے یا لے سکتے تھے ؟	**12**

Annexure D

Annexure D shows the final version of ARQ-U selected from four independent translations.

درج ذیل میں ایسی چیزیں بیان کی گی ہیں جو کہ منشیات سے بحالی میں لوگوں کو اہم لگتی ہیں۔ براہ مہربانی نیچے دیے گے ہر سوال کا پچھلے مہینے کے مطابق جواب دیں۔ کیا آپ کے۔۔۔۔

نمبر شمار	ARQ Test			
		بالکل نہیں	شاذونادرہی	اکثر	ہر وقت
۱	ضروریات زندگی بسر کرنے کے لیے کافی رقم موجود تھی؟				
۲	آپ کی زندگی میں موجود اہم لوگوں نے آپ پر اعتماد کیا؟				
۳	مناسب رہایش میں قیام پذیر رہے؟				
۴	روزمرہ کی سرگرمیاں جاری رکھی رہیں؟				
۵	مجرمانہ سرگرمیوں میں ملوث رہاہوں؟				
۶	ایسے لوگوں کے رابطے میں رہاہوں جو شراب اور دیگر منشیات کا استعمال کرتے رہے؟				
۷	ایسے لوگوں کا دوست رہاجو شراب یامنشیات کا استعمال نہیں کرتے؟				
۸	شراب اور دیگر منشیات سے مکمل پرہیز میں رہا؟				
۹	منشیات یاذہنی امراض کی ادویات لیتارہا؟				
۱۰	مستقبل سے متعلق مثبت احساس تھا؟				
۱۱	اپنے بارے میں عموماً اچھا محسوس کیا؟				
۱۲	شراب یادیگر منشیات جنہیں آپ نہیں چاہتے تھے۔ استعمال کے دباو کی مزاحمت پر پُراعتماد رہے؟				

Annexure E

Annexure E shows the four back translations of ARQ-U into source language.

Items	Translation A	Translation B	Translation C	Translation D
1	Do you have sufficient money at your disposal for fulfilling requirements of your life?	There was enough amount available to full fill the necessities of life.	Was there enough money to meet the necessities of life?	There was just enough money to manage everyday life needs?
2	Did important people in your life trust you?	People important in your life trusted you.	Did the important people in your life trust you?	Did the most important people in your life trust you?
3	Did you live in a suitable house/ lodging?	Have been staying in an appropriate/ a reasonable residence.	Staying in an affordable residence?	Lived in a reasonable residence
4	Did you continue your routine activities?	Have continued / carried on daily activities.	Continuing your daily activities?	Was able to manage daily life affairs\ matters.
5	Were you engaged in criminal activities?	Have been involved in criminal activities.	Been involved in criminal activities?	Was involved in criminal activities?
6	Did you connect with people who were drug addicts or alcoholics?	Have been in contact with drug and alcohol addicts/users.	Have been in contact with people who use alcohol and other drugs?	Was in contact such people who abused drugs like alcohol etc?
7	Did you befriend with those who were not drug addicts or alcoholics?	Had been friends with people who do not use drugs or alcohol.	have been friends with people who do not drink or use drugs?	Maintained friendship with people who didn't use alcohol or other drugs?

8	Did you refrain completely from alcohol or other drugs?	Have completely avoided drugs and alcohol.	Have been completely abstinent from alcohol and other drugs?	Remained in total abstinence from all kind of drugs?
9	Did you keep using medicines for treatment of drugs or psychotic disorders?	Have been on psychiatric or narcotic medications.	Been taking drugs or psychiatric medications?	Regularly took my medications of drug addiction and mental illness?
10	Did you feel optimistic about your future?	Was/Felt positive about/regarding future.	Had a positive feeling about the future?	Was hopeful regarding future?
11	Did you feel positive about yourself?	Felt good about myself generally.	Feeling generally good about yourself?	Felt good about myself mostly?
12	Do you confidently resist alcohol or those drugs that you disliked?	Have been confident in your resistance to using alcohol or other drugs you did not want.	Did you have faith in yourself that you could conquer the urge to use alcohol and other narcotics?	Remained hopeful and trusted on resisted the pressure of alcohol and other drugs, which I never knew of before?

Annexure F

Annexure F shows the back translation finalized from four translations.

Stated below are the things people find important in their recovery. Kindly answer each question given below. In regards to the previous month have you…

Absolutely not	Rarely	Often	Always

No.	Items
1	was there enough money to meet the necessities of life?
2	people important in your life trusted you?
3	have been staying in a reasonable residence?
4	been continuing your daily activities?
5	have been involved in criminal activities?
6	have been in contact with drug addicts and alcohol users?
7	been friends with people who do not use drugs or alcohol?
8	been completely abstinent from alcohol and other drugs?
9	been taking drugs or psychiatric medications?
10	had a positive feeling about the future?
11	feeling generally good about yourself?
12	been confident in your resistance to using alcohol or other drugs you might feel for using?

Annexure G

Annexure G shows the suggestions and comments of authors of ARQ.

Stated below are the things people find important in their recovery. Kindly answer each question given below. In regards to the previous month have you…

Absolutely not Rarely Often Always

No.	Items	Suggestions
1	was there enough money to meet the necessities of life?	Okay
2	people important in your life trusted you?	Okay
3	have been staying in a reasonable residence?	Okay
4	been continuing your daily activities?	Okay
5	have been involved in criminal activities?	Okay
6	have been in contact with drug addicts and alcohol users?	Okay
7	been friends with people who do not use drugs or alcohol?	Okay
8	been completely abstinent from alcohol and other drugs?	Okay
9	been taking drugs or psychiatric medications?	Drugs in UK would mean illegal drugs – can you work this so that your word for medication applies to both addiction and mental health medications.
10	had a positive feeling about the future?	Okay
11	feeling generally good about yourself?	Okay
12	been confident in your resistance to using alcohol or other drugs you might feel for using?	The important thing is that you do NOT want to take them.

Annexure H

Annexure H shows the final version of ARQ generated after incorporating the authors suggestions.

Stated below are the things people find important in their recovery. Kindly answer each question given below. In regards to the previous month have you…

Absolutely not	Rarely	Often	Always

No	**Items**
1	enough money to meet the necessities of life?
2	Been trusted by important people in your life?
3	have been staying in a reasonable residence?
4	been continuing your daily activities?
5	have been involved in criminal activities?
6	have been in contact with drug addicts and alcohol users?
7	been friends with people who do not use drugs or alcohol?
8	been completely abstinent from alcohol and other drugs?
9	been taking medications for mental illness or drug addiction?
10	had a positive feeling about the future?
11	feeling generally good about yourself?
12	been confident in refusing to use alcohol or other drugs you might feel to use in a situation?

Annexure I

ARQ-U

درج ذیل میں ایسی چیزیں بیان کی گی ہیں جو کہ منشیات سے بحالی میں لوگوں کو اہم لگتی ہیں۔ براہ مہربانی نیچے دیے گے ہر سوال کا پچھلے مہینے کے مطابق جواب دیں۔ کیا آپ کے۔۔۔۔

بالکل نہیں	شاذوناذرہی	اکثر	ہر وقت

نمبر شمار	ARQ Test
۱	ضروریات زندگی بسر کرنے کے لیے کافی رقم موجود تھی؟
۲	آپ کی زندگی میں موجود اہم لوگوں نے آپ پر اعتماد کیا؟
۳	مناسب رہایش میں قیام پذیر رہے؟
۴	روزمرہ کی سرگرمیاں جاری رکھی رہیں؟
۵	مجرمانہ سرگرمیوں میں ملوث رہا ہوں؟
۶	ایسے لوگوں کے رابطے میں رہا ہوں جو شراب اور دیگر منشیات کا استعمال کرتے رہے؟
۷	ایسے لوگوں کا دوست رہا جو شراب یا منشیات کا استعمال نہیں کرتے؟
۸	شراب اور دیگر منشیات سے مکمل پرہیز میں رہا؟
۹	منشیات یا ذہنی امراض کی ادویات لیتا رہا؟
۱۰	مستقبل سے متعلق مثبت احساس تھا؟
۱۱	اپنے بارے میں عموماً اچھا محسوس کیا؟
۱۲	شراب یا دیگر منشیات جنہیں آپ نہیں چاہتے تھے۔ استعمال کے دباو کی مزاحمت پر پُر اعتماد رہے؟

Annexure J

Content Validity Ratio (CVR)

S. No	Statement of the item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	CVR
1		x	x	x	x	x	1
2		x	x	x	x	x	1
3		x	x	x	x	x	1
4		x	x	x	x	x	1
5		x	x	x	x	x	1
6		x	x	x	x	x	1
7		x	x	x	x	x	1
8		x	x	x	x	x	1
9		x	x	x	x	x	1
10		x	x	x	x	x	1
11		x	x	x	x	x	1
12		x	x	x	x	x	1
CVI							1

Annexure K

Questionnaire for interview (Unfreezing Stage)

1. Introduction of participant (age, occupation, qualification, professional experience)
2. How long are you being in this field?
    a. Are you aware of different treatment models for drug addiction?
3. Explain the model which you use for the treatment of drug addiction?
    a. Why did you choose this model?
    b. Does this approach has any proven efficacy?
4. What are the benefits (pros) of this model?
    a. Is it an evidence-based model?
5. What are the limitations in the model?
6. Are the clients you are mainly aim aware of the model?
7. During practice of the model with patients what kind of challenge you faced?
    a. What's your honest opinion?
8. How is your experience with this model?
    a. Is this model is indigenous/adapted or borrowed?
9. Does this model deal with comorbid illness?
10. In your view what are the characteristic of a comprehensive and effective treatment model?
11. Do you think there is a need for an evidence-based treatment model for drug addiction?

Annexure L

IICRA Treatment Schedule

Patient Name:

_____

Psychologist: _____

Days	Topics
1	• Rapport building • Hygiene: Physical, washroom, health and clothing related
2	• Rapport building • Hygiene: Physical, washroom, health and clothing related • History taking
3	• Rapport building • Daily routine regularity information • Hygiene: Physical, washroom, health and clothing related • History taking • Answering the patient's concerns
4	• Rapport building • Hygiene: Physical, washroom, health and clothing related • Daily routine regularity invitation • History taking • 10 minutes indoor walk
5	• Rapport building • Hygiene: Physical, washroom, health and clothing related • Daily routine regularity invitation • History taking • 15 minutes indoor walk
6	• Rapport building • Hygiene: Physical, washroom, health and clothing related • History taking • 15 minutes indoor walk and 10 minutes outdoor walk
7	**SUNDAY**
8	• Rapport building • Hygiene: Physical, washroom, health and clothing related • Sleep and food related hygiene • Grief recovery: Finding Hope (Rada bil qada and nafs-Lawama) • Emphasis on attending at least one class • 30 minutes indoor and outdoor walk
9	• Emphasis on attending at least one group session • Hygiene: Sleep and food related hygiene

	• Grief recovery: Finding Hope (Rada bil qada and nafs-Lawama) • 30 minutes indoor and outdoor walk
10	• Emphasis on attending at least one class • Hygiene: Sleep and food related hygiene • 30 minutes indoor and outdoor walk • Grief recovery: Finding Hope (Rada bil qada and nafs-Lawama)

Days	Topics
11	• Emphasis on attending at least one group or two group sessions • Hygiene: Sleep and food related hygiene • 30 minutes indoor and outdoor walk • Grief recovery: Finding Hope (Rada bil qada and nafs-Lawama) • Outdoor Physical activities • Indoor games
12	• Emphasis on attending at least one group or two group sessions • Hygiene: Sleep and food related hygiene • 30 minutes indoor walk and outdoor walk • Outdoor Physical activities • Indoor games
13	• Emphasis on attending all group sessions • 30 minutes indoor walk and outdoor walk • Outdoor Physical activities • Indoor games
14	**SUNDAY**
15	• Emphasis on attending at least 1 group or 2 group sessions • Hygiene: Sleep and food related hygiene • 30 minutes indoor walk and outdoor walk • Outdoor Physical activities • Indoor games
16	• Emphasis on attending at least 1 group or 2 group sessions • Hygiene: Sleep and food related hygiene • 30 minutes indoor walk and outdoor walk • Outdoor Physical activities • Indoor games
17	• Emphasis on attending at least 1 group or 2 group sessions • Hygiene: Sleep and food related hygiene • 30 minutes indoor walk and outdoor walk • Outdoor Physical activities • Indoor games

18	• Emphasis on attending at least 1 group or 2 group sessions • Hygiene: Sleep and food related hygiene • 30 minutes indoor walk and outdoor walk • Outdoor Physical activities • Indoor games
19	• Emphasis on attending at least one group or two group sessions • Hygiene: Sleep and food related hygiene • 30 minutes indoor walk and outdoor walk • Outdoor Physical activities • Indoor games
20	• Emphasis on attending all group sessions • Hygiene: Sleep and food related hygiene • 30 minutes indoor walk and outdoor walk • Outdoor Physical activities • Indoor games
21	**SUNDAY**
22	• Community Reinforcement Approach (CRA) introduction in reference to drug addiction disease concept (I) • All group sessions • Outdoor and indoor physical activities
23	• Community Reinforcement Approach (CRA) introduction in reference to drug addiction disease concept (II)
24	• Community Reinforcement Approach (CRA) introduction in reference to drug addiction disease concept (III)
25	• CRA: Functional Analysis (Initial Assessment) + Assessment of religiosity
26	• CRA: Happiness Scale
27	• CRA: Prosocial Behavior
28	**SUNDAY**
29	• CRA: Goals of Counselling (identification of intervention strategies in reference to initial assessment)
30	• CRA: Goals of Counselling (identification of intervention strategies in reference to initial assessment)
31	• CRA: Goals of Counselling (Psycho-spiritual Functioning)

Days	Topics
32	• CRA: Goals of Counselling (Psycho-spiritual Functioning)
33	• CRA: Goals of Counselling (Psycho-spiritual Functioning)

34	• CRA: Goals of Counselling (Psycho-spiritual Functioning)
35	**SUNDAY**
36	• CRA: Goals of Counselling (Psycho-spiritual Functioning)
37	• CRA: Goals of Counselling (Psycho-spiritual Functioning)
38	• CRA: Goals of Counselling (Psycho-spiritual Functioning)
39	• CRA: Goals of Counselling (Psycho-spiritual Functioning)
40	• CRA: Goals of Counselling (Psycho-spiritual Functioning)
41	• CRA: Goals of Counselling (Psycho-spiritual Functioning)
42	**SUNDAY**
43	• Goals of Counselling (behavior modification and reformation)
44	• Goals of Counselling (behavior modification and reformation)
45	• Goals of Counselling (behavior modification and reformation)
46	• Goals of Counselling (behavior modification and reformation: Reciprocal Inhibition)
47	• Goals of Counselling (behavior modification and reformation: Reciprocal Inhibition)
48	• Goals of Counselling (behavior modification and reformation: Reciprocal Inhibition)
49	**SUNDAY**
50	• Goals of Counselling (behavior modification and reformation: Six Ms)
51	• Goals of Counselling (behavior modification and reformation: Six Ms)
52	• Goals of Counselling (behavior modification and reformation: Six Ms)
53	• Goals of Counselling (behavior modification and reformation: Six Ms)
54	• Goals of Counselling (behavior modification and reformation: Six Ms)
55	• Goals of Counselling (behavior modification and reformation: Six Ms)
56	**SUNDAY**
57	• CRA: Goals of Counselling (Cognitive Restructuring, Aql RIDA model)
58	• CRA: Goals of Counselling (Cognitive Restructuring, Aql RIDA model)
59	• CRA: Goals of Counselling (Cognitive Restructuring, Aql RIDA model)
60	• CRA: Goals of Counselling (Cognitive Restructuring, Aql RIDA model)
61	• CRA: Goals of Counselling (Cognitive Restructuring, Aql RIDA model)
62	• CRA: Goals of Counselling (Cognitive Restructuring, Aql RIDA model)

63	**SUNDAY**
64	• CRA: Goals of Counselling (Emotional Regulation)
65	• CRA: Goals of Counselling (Emotional Regulation)
66	• CRA: Goals of Counselling (Emotional Regulation)
67	• CRA: Goals of Counselling (Emotional Regulation)
68	• CRA: Goals of Counselling (Emotional Regulation)
69	• CRA: Goals of Counselling (Emotional Regulation)
70	**SUNDAY**
71	• CRA: Goals of Counselling (Emotional Regulation)
72	• CRA: Goals of Counselling (Emotional Regulation)
73	• CRA: Goals of Counselling (Emotional Regulation)
74	• CRA: Goals: Relapse prevention skills (early warning signs)
75	• CRA: Goals: Relapse prevention skills (early warning signs)

Days	Topics
76	• CRA: Goals: Relapse prevention skills (early warning signs)
77	**SUNDAY**
78	• CRA: Goals of Counselling (Early warning signs: Craving Management)
79	• CRA: Goals of Counselling (Early warning signs: Craving Management)
80	• CRA: Goals of Counselling (Problem Solving Skills)
81	• CRA: Goals of Counselling (Problem Solving Skills)
82	• CRA: Goals of Counselling (Problem Solving Skills)
83	• CRA: Goals of Counselling (Problem Solving Skills)
84	**SUNDAY**
85	• CRA: Goals of Counselling (Problem Solving Skills)
86	• Communication skills (interpersonal effectiveness)
87	• Communication skills (interpersonal effectiveness)
88	• Communication skills (interpersonal effectiveness)
89	• Communication skills (interpersonal effectiveness)
90	• Communication skills (interpersonal effectiveness)
91	**SUNDAY**
92	• Communication skills (interpersonal effectiveness)
93	• Communication skills (interpersonal effectiveness)
94	• CRA: Goals of Counselling (Relationship with Caregiver)
95	• CRA: Goals of Counselling (Relationship with Caregiver)

96	• CRA: Goals of Counselling (Relationship with Caregiver)
97	• CRA: Goals of Counselling (Relationship with Caregiver)
98	**SUNDAY**
99	• CRA: Goals of Counselling (Relationship with Caregiver)
100	• CRA: Goals of Counselling (Relationship with Caregiver)

Annexure M

Symptoms Checklist (SCL-90)

مندرجہ ذیل فہرست ان مسائل اور شکایات کے بارے میں ہے جو لوگوں کو اکثر پیش آتی ہیں۔ ہر ایک کو غور سے پڑھیں۔ ایسا کرنے کے بعد کسی ایک کیفیت کو منتخب کریں جیسے مثال کے طور پر کسی پریشانی یا مسئلے نے آپ کو پچھلے ہفتے حتیٰ کہ آج بھی الجھائے رکھا ہے۔ دائیں جانب دیے گئے مسئلے پر ہندسے میں دائرہ لگائیں اور کسی بھی جز کو خالی نہ چھوڑیں۔

"0" پر دائرہ لگائیے، اگر آپ کا جواب ہے (بالکل نہیں)

"1" پر دائرہ لگائیے، اگر آپ کا جواب ہے (تھوڑا بہت)

"2" پر دائرہ لگائیے اگر آپ کا جواب ہے (کم و بیش)

"3" پر دائرہ لگائیے اگر آپ کا جواب ہے (کافی حد تک)

"4" پر دائرہ لگائیے، اگر آپ کا جواب ہے (حد سے زیادہ)

	آپ نے کتنی بار ناگواری اور پریشانی محسوس کی	حد سے زیادہ	کافی حد تک	کم و بیش	تھوڑا بہت	بالکل نہیں
1	سر میں درد	4	3	2	1	0
2	گھبراہٹ یا لرزا طاری ہونا	4	3	2	1	0
3	غیر ضروری سوچ	4	3	2	1	0
4	الفاظ یا خیالات جو آپ کے ذہن سے نہیں نکلتے	4	3	2	1	0
5	بے ہوشی یا چکر آنا	4	3	2	1	0
6	جنسی خواہش کا نہ ہونا	4	3	2	1	0
7	دوسروں کی تنقید کو محسوس کرنا	4	3	2	1	0
8	اس بات کا احساس کہ کوئی اور آپ کے خیالات پر قابو پا سکتا ہے	4	3	2	1	0
9	چیزیں یاد رکھنے میں مشکل ہونا	4	3	2	1	0
10	سستی اور لاپرواہی کے بارے میں پریشان ہونا	4	3	2	1	0
11	جلد غصہ میں آجانا اور چڑچڑا پن محسوس کرنا	4	3	2	1	0
12	دل یا سینے میں درد	4	3	2	1	0
13	کھلی جگہوں یا گلیوں میں خوف محسوس کرنا	4	3	2	1	0
14	کمزوری اور سستی کا احساس ہونا	4	3	2	1	0
15	اپنی زندگی کو ختم کرنے کا خیال آنا	4	3	2	1	0
16	ایسی آوازیں سنائی دینا جو دوسروں کو سنائی نہ دیتی ہوں	4	3	2	1	0
17	کپکپی طاری ہونا	4	3	2	1	0
18	محسوس کرنا کہ زیادہ تر لوگوں پر اعتبار نہیں کیا جا سکتا	4	3	2	1	0
19	بھوک نہ لگنا	4	3	2	1	0
20	جلدی رو پڑنا	4	3	2	1	0
21	صنف مخالف کی موجودگی میں شرم اور ہچکچاہٹ کا احساس	4	3	2	1	0
22	پھنسے ہوا یا جکڑے ہوئے محسوس ہونا	4	3	2	1	0
23	بغیر کسی وجہ سے اچانک خوفزدہ ہونا	4	3	2	1	0
24	غصہ میں اپنے اوپر قابو نہ رکھ سکنا	4	3	2	1	0
25	اپنے گھر سے باہر اکیلے جاتے ہوئے خوف محسوس کرنا	4	3	2	1	0
26	اپنے آپ کو قصوروار ٹھہرانا	4	3	2	1	0
27	کمر کے نچلے حصہ میں درد ہونا	4	3	2	1	0
28	کام کرتے وقت دماغ بند محسوس ہونا	4	3	2	1	0
29	اکیلا پن محسوس کرنا	4	3	2	1	0

	آپ نے کتنی بار نا گواری اور پریشانی محسوس کی	حد سے زیادہ	کافی حد تک	کم و بیش	تھوڑا بہت	بالکل نہیں
30	اداسی محسوس ہونا	4	3	2	1	0
31	چیزوں کے بارے میں ضرورت سے زیادہ فکر مند ہونا	4	3	2	1	0
32	چیزوں میں دلچسپی محسوس نہ ہونا	4	3	2	1	0
33	خوف محسوس کرنا	4	3	2	1	0
34	آپ کے احساسات کو آسانی سے تکلیف پہنچتی ہے	4	3	2	1	0
35	دوسرے لوگ آپ کے ذاتی خیالات سے آگاہ ہیں	4	3	2	1	0
36	یہ احساس کہ دوسرے لوگ آپ کو سمجھتے نہیں یا آپ کے ہمدرد نہیں ہیں	4	3	2	1	0
37	ایسا محسوس ہونا کہ لوگ آپ سے دوستی نہیں رکھتے/یا آپ کو ناپسند کرتے ہیں	4	3	2	1	0
38	ہر کام کو بہت آہستہ آہستہ کرنا تا کہ ٹھیک سے ہو جائے	4	3	2	1	0
39	دل کی دھڑکن تیز ہو جانا	4	3	2	1	0
40	متلی یا معدہ خراب ہونا	4	3	2	1	0
41	خود کو دوسروں سے کم تر محسوس کرنا	4	3	2	1	0
42	پٹھوں میں کھنچاؤ اور درد کا احساس	4	3	2	1	0
43	ایسا محسوس ہونا کہ دوسرے لوگ آپ کو دیکھ رہے ہیں یا آپ کے بارے میں باتیں کر رہے ہیں	4	3	2	1	0
44	نیند آنے میں مشکل ہونا	4	3	2	1	0
45	اپنے کیے ہوئے کام کو بار بار چیک کرنا	4	3	2	1	0
46	فیصلہ کرنے میں مشکل ہونا	4	3	2	1	0
47	بسوں، ویگنوں اور ریل گاڑی میں سفر کرتے ہوئے خوف محسوس کرنا	4	3	2	1	0
48	سانس لینے میں مشکل ہونا	4	3	2	1	0
49	ٹھنڈے یا گرم پسینے آنا	4	3	2	1	0
50	کچھ جگہوں، چیزوں اور کاموں کو گریز کرنا کیونکہ یہ آپ کو خوف زدہ کرتے ہیں	4	3	2	1	0
51	دماغ ماؤف ہو جانا	4	3	2	1	0
52	جسم کے اعضاء کا سن ہو جانا اور سوئیاں چبھنا	4	3	2	1	0
53	آپ کے حلق میں رکاوٹ ہونا یا حلق خشک ہو جانا	4	3	2	1	0
54	مستقبل کے بارے میں مایوسی کا احساس ہونا	4	3	2	1	0
55	دھیان یا توجہ دینے میں مشکل ہونا	4	3	2	1	0
56	جسمانی اعضاء میں کمزوری محسوس کرنا	4	3	2	1	0
57	ذہنی تناؤ محسوس کرنا	4	3	2	1	0
58	بازوؤں اور ٹانگوں میں بھاری پن محسوس کرنا	4	3	2	1	0
59	موت اور مرنے کے خیالات آنا	4	3	2	1	0
60	ضرورت سے زیادہ کھانا	4	3	2	1	0
61	اس خیال سے پریشان ہو جانا کہ لوگ آپ کو دیکھ رہے ہیں یا آپ کے بارے میں باتیں کر رہے ہیں	4	3	2	1	0
62	ان خیالات کا آنا جو آپ کے اپنے نہیں نہیں	4	3	2	1	0
63	کسی کو مارنے، زخمی کرنے یا نقصان پہنچانے کی خواہش ہونا	4	3	2	1	0
64	صبح سویرے آنکھ کھل جانا	4	3	2	1	0
65	ایک کام کو بار بار کرنا جیسے چھونا، گننا، یاد ہونا	4	3	2	1	0

	آپ نے کتنی بار ناگواری اور پریشانی محسوس کی	حد سے زیادہ	کافی حد تک	کم و بیش	تھوڑا بہت	بالکل نہیں
66	نیند میں خلل اور بے چینی	4	3	2	1	0
67	چیزوں کو توڑنا یا تباہ کرنے کی خواہش کرنا	4	3	2	1	0
68	ان خیالات اور اعتقادات کا ہونا، جو دوسرے نہیں رکھتے	4	3	2	1	0
69	دوسرے لوگوں کی موجودگی میں اپنے بارے میں بہت حساس ہونا	4	3	2	1	0
70	ہجوم میں خریداری یا فلم دیکھتے ہوئے بے چینی محسوس کرنا	4	3	2	1	0
71	ہر چیز میں مشقت محسوس کرنا	4	3	2	1	0
72	خوف اور پریشانی کے دورے پڑنا	4	3	2	1	0
73	لوگوں کے سامنے کھاتے پیتے ہوئے دشواری محسوس کرنا	4	3	2	1	0
74	اکثر اوقات بحث و تکرار میں پڑنا	4	3	2	1	0
75	تنہائی میں خود کو بے چین اور آوازار محسوس کرنا	4	3	2	1	0
76	دوسروں کا آپ کی کامیابیوں کے مطابق نہ سراہنا	4	3	2	1	0
77	لوگوں کے ساتھ ہوتے ہوئے بھی خود کو اکیلا محسوس کرنا	4	3	2	1	0
78	انتہائی بے چینی کا یہ عالم کہ آپ ایک جگہ تک کر بیٹھ نہ سکیں	4	3	2	1	0
79	آپ اپنے آپ کو ناکارہ سمجھنا	4	3	2	1	0
80	یہ احساس کہ جانی پہچانی چیزیں عجیب یا غیر حقیقی ہیں	4	3	2	1	0
81	چیخنا یا چیزیں پھینکنا	4	3	2	1	0
82	ہجوم میں بے ہوش ہو جانے کا ڈر محسوس کرنا	4	3	2	1	0
83	یہ احساس کہ اگر آپ نے لوگوں کو ذرہ ڈھیل دی تو وہ اس کا خوب فائدہ اٹھائیں گے	4	3	2	1	0
84	ایسے جنسی خیالات جو آپ کو بہت زیادہ پریشان کرتے ہیں	4	3	2	1	0
85	یہ خیال آنا کہ آپ کو اپنے گناہوں کی سزا ملنی چاہئے	4	3	2	1	0
86	کام کرنے پر مجبور محسوس ہونا	4	3	2	1	0
87	یہ خیال کہ آپ کے جسم کے ساتھ کوئی شدید مسئلہ ہے	4	3	2	1	0
88	خود کو کسی دوسرے شخص کے قریب محسوس نہ کرنا	4	3	2	1	0
89	احساس گناہ/احساس ندامت	4	3	2	1	0
90	یہ خیال کہ آپ کو کوئی ذہنی مسئلہ ہے	4	3	2	1	0