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Delving into the Elements Impacting Treatment Acceptance among patients with Substance Use Disorder using Health Belief Model: a qualitative study

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Abstract

Background Substance abuse has become a significant public health issue in Iraq, fueled by economic slowdown, and high unemployment rates. Treatment acceptance among Iraqi patients with substance use disorder remains poorly understood.

Objectives The study aimed to explore in-depth the factors influencing treatment acceptance among patients with substance use disorder (SUD).

Methods This qualitative study included face-to-face semi-structured interviews with patients having SUD relying on the Health Belief Model. Convenience sampling was employed to interview patients from the two specialized treatment centers in Baghdad between Nov. 2023 through Feb 2024. Thematic analysis was used to identify recurring themes and sub-themes.

Results Thirty-three patients from both genders (27 male and 6 female) were recruited in this study. Most (60.6%) of participants had primary school education and 63.6% of them were low-income workers. Ninety-one percent abused Crystal (Methamphetamine). Interviews showed patients have good adherence to treatment. Four domains of the Health Belief Model were strongly connected with the patient motivation to initial engagement and adherence to treatment. The patients perceived benefits for treatment (improving physical and mental health and restoration of family relationships), cues to action (a national program about cured cases and influences of family, friends and legal issues), good subjective norm (support from family during hospitalization), and facilitating conditions (maintaining privacy, availability of free treatment, and governmental financial assistance to recovered patients). On the other hand, perceived barriers were an obstacle to seeking treatment including lack of awareness about treatment centers, fear of legal consequences, and psychological barriers. Additionally, patients had high susceptibility to relapse which prevents long-lasting recovery from substance abuse due to high accessibility and affordability of drugs.

Conclusion The majority of patients adhered to their treatment plans well due to perceived benefit of treatment, perceived severity of SUD, positive subject norms, and alarming cues to action The HBM successfully explains the

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factors that influence treatment acceptance among patients with SUD. Increasing treatment acceptability among patients with SUD requires addressing existing barriers (lack of awareness about treatment centers, addiction enjoyment, and fear of legal consequences) and improving the facilitating factors. Extensive awareness campaigns and providing accessible treatment facilities can increase treatment acceptance. Health officials can enable more patients to make responsible choices of getting treatment and overcoming addiction by establishing additional drug-abuse treatment centers across the nation. Finally, the findings of this study can help health authorities in the region to identify potential factors affecting patients with SUD willingness to accept treatment.

Keywords Substance abuse, Treatment acceptance, Iraq, Qualitative study, Health belief model

Background

Addiction is defined as a "chronic, primary, progressive and fatal disease characterized by the compulsion to use drugs, with an associated loss of control over drug use, and continued use of drugs despite known problems" [1]. It is a serious global public health issue. As reported in the World Drug Report 2023 (WDR 2023), one in every 17 people worldwide had used a drug in 2021, and the global drug abuse rate increased by 23% between 2011 and 2021 [2] In 2021, an estimated 36 million people, 22 million people, and 20 million people reported using amphetamines, cocaine, and ecstasy-type substances, respectively, within the past 12 months [2]. Substance use disorders cost an estimated approximately 18 million years of healthy life lost due to disability and premature death in 2019 [2].

Substance use disorder (SUD) is a significant public health issue in Iraq, with a highly prevalent rate of addiction, particularly to substances like alcohol, prescription drugs, and Hashish [3, 4]. A recent study indicated the number of individuals with substance abuse who appeared before judges in Iraqi courts increased by more than double from 2016 to 2020 [5]. This prevalence of drug use or dealing can be attributed to the country's history of conflict, economic difficulties, high inflation, and unemployment, particularly among young adults with limited education [6] Additionally, studies have identified a significant association between trauma and mental illness, and a high prevalence of alcohol and drug abuse among Baghdad residents [4].

A significant barrier to accessing mental health treatment is the interplay of various factors, including trust issues, social stigma, medication shortages, cultural barriers, and limited access due to logistical, geographical, and financial constraints. This severely limits the ability of individuals to receive the care they need [7–10]. Additionally, studies conducted in Karbala, Iraq, found that the existing attitudes of population and general practitioners towards addiction as a moral failing rather than a medical issue, which further complicates treatment-seeking behavior [11, 12].

Regular medical care can help patients with substance use disorders reintegrate into society and can even prevent them from using addictive substances [13]. Globally, drug use treatment services were only received by 1 in 5 persons with drug use problems [2]. In Iraq, 6101 patients with substance abuse received care from Iraqi Ministry of Health (MOH) facilities in 2017, 2018, 2020, and 2021 with 50% of them treated in Baghdad [5].

Little is known about the experience patients hold regarding the treatment as well as the motivations behind accepting or resisting them. A critical gap exists in understanding the specific factors influencing treatment acceptance among those struggling with addiction. Understanding these barriers and facilitators is crucial for developing effective interventions and improving treatment outcomes in this population. which can be addressed by a qualitative study with theoretical bases grounded in the HBM that can help policymakers, researchers, and practitioners create treatment plans for drug addiction.

The Health Belief Model (HBM) posits that individuals' health-related behaviors are influenced by their perceptions of susceptibility, severity, benefits, barriers, cues to action, and self-efficacy. By examining these constructs within the context of substance use disorders, this study can shed light on the factors that motivate or hinder individuals' willingness to seek treatment [14]. The HBM framework has been used in a variety of behavioral scenarios, such as predicting the adherence to medical treatment, participation in health prevention measures including exercise, screenings, vaccines, substance use disorder treatment engagement, prevention of drug abuse, and harm reduction strategies [15–18]. To the best of our knowledge, this is the first study to identify factors that affect treatment acceptance among patients with substance abuse in Iraq.

The Health Belief Model (HBM) is a valuable framework for chronic disease management, including substance use disorders (SUD), due to its strong emphasis on individual perceptions and beliefs. Recognizing individual perceptions of susceptibility, the severity of negative consequences associated with SUD, and the perceived benefits and barriers to preventive actions is essential for the development of effective and tailored interventions [19]. According to Mikhail et al. (2024), Iraqi community pharmacists identified poverty, social problems, and low education as significant barriers to addressing drug

use disorder, aligning with the HBM's focus on perceived barriers to behavior change [20]. The HBM is particularly useful for understanding patient engagement, compliance, and lifestyle modifications, which are critical for successful management of chronic diseases requiring long-term treatment adherence [19].

This study aims to explore in-depth the factors influencing treatment acceptance among patients with substance abuse using the HBM. Information gained from this study can help health authorities in the region to identify potential factors affecting drug abusers' willingness to accept treatment.

Methods

Study design and settings

To achieve a comprehensive and multidimensional understanding of addiction treatment acceptance, a qualitative study was employed since it could identify hidden and complicated aspects that quantitative studies could miss. This qualitative study included face-to-face semi-structured interviews with substance abuse patients relying on the Health Belief Model. The interviews were conducted in the two specialized substance abuse treatment centers in Baghdad between Nov. 2023 through Feb. 2024. One center was designated for men only, while the other center accepted both men and women. The interviews were conducted using the native language, Arabic, and a friendly tone to foster a deep level of rapport and allow for the uninhibited expression of the participants' convictions. Each interview session lasted approximately 20 to 40 min, during which participants actively engaged in a thorough exploration of their viewpoints. The patients were interviewed until reaching saturation, the point at which no additional information emerged from subsequent interviews [21].

Recruitment of participants and data collection

Convenience sampling was employed to recruit participants from two addiction treatment centers in Baghdad, Iraq. The study included patients of any age, gender, and educational background and excluded patients with cognitive impairment, severe psychiatric, and those with alcohol addiction only. Informed consent was obtained from all participants before conducting the interviews. The participants were assured of confidentiality/ anonymity throughout the research process and the collected information will not be used against them.

The data collection process started after all participants received a comprehensive briefing outlining the study's objectives before obtaining informed consent. Guarantees of the utmost confidentiality and anonymity were provided to participants. The interview site aimed to foster a sense of trust. Hence, the interviews were conducted in the same setting. Audio recording of participant narratives was employed to ensure an accurate capture of their insightful perspectives.

Theoretical framework

The Health Belief Model (HBM) was used as a theoretical framework for exploring treatment acceptance among substance abusers [22]. The HBM posits that a person's belief in the severity of a negative consequence (substance abuse's harmful effects), the perceived benefit of treatment and the perceived barriers that could prevent them from engaging in treatment can influence their motivation to seek help. The fourth domain was cues to action which refers to the alarms that encourage them to seek treatment. By applying this HBM framework, researchers can gain a deeper understanding of the factors that shape a patient's willingness to engage in the treatment.

Interview guide

The interview guide included two parts (see the full interview guide in the supplementary). Part 1: The patient's sociodemographic included age, sex, marital status, address (province), education, job, and income. Part 2 contains 13 questions that reflect the five domains of the HBM in addition to facilitating conditions for treatment and subjective norms. The researcher and the objectives of the study were introduced at the beginning of the interview.

Thematic analyses

The recorded interviews were transcribed verbatim and reviewed by the research team to ensure accuracy. The information gained from the interviews was analyzed using thematic analyses. The research team used participant comments to find and develop themes during the thematic analysis of the data. We followed the six phases of thematic analysis described by Braun and Clarke, which include familiarizing with data (comments), generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report [23].

The research team cross-checked the comments. The emerging themes were organized according to the HBM. In addition, there were two new themes domains subjective norms and facilitating conditions. Finally, peer checking and debriefing were done twice to validate the qualitative analysis.

The study proposal was approved by the Ethical Committees by our college in addition to the two participating drug abuse treatment centers. Informed consent was obtained from all participants before conducting the interviews. The participants' confidentiality was assured. The information was deidentified to secure anonymity

throughout the research process. Finally, no incentives were offered to the participants.

Results

The study included 33 interviews with patients conducted in the two specialized substance abuse treatment centers in Baghdad, one for men only and the other for both men and women. Early in the study, three patients refused to participate in the interviews because they were in a hurry to return to their homes outside of Baghdad. Table 1 illustrates the Participants' socio-demographic characteristics and Table 2 shows the cumulative summary of the participants' characteristics. Within this study sample, 27 participants (81.81%) were male, and six (18.18%) were female. In fact, the researcher interviewed six out of eight women (with SUD) admitted during the study period given the two excluded women were highly agitated and ineligible for interview. Additionally, 60.6% of participants had primary school education. Two-thirds (63.63%) of the participants had low-income jobs (Table 1). The majority of the participants ($n = 30$, 90.9%) reported that the most substance abused was Crystal (Methamphetamine) (Fig. 1).

Based on our qualitative findings, the Health Belief Model could include two additional domains to fully explain the acceptance of treatment among patients with substance abuse: subjective norms (person's acceptance of the treatment could be influenced by the actions of family and friends) and facilitating conditions (factors that enhance treatment acceptance among patients with substance abuse).

Main themes were categorized according to the HBM domain perceived barriers, perceived severity of addiction, perceived benefits of treatment, cues to action, subjective norm, facilitating conditions for treatment, and susceptibility to relapse in Fig. 2.

Perceived barriers to seeking treatment

The most predominant ($n = 12$) recurring theme about barriers that might prevent patients from seeking treatment: was unawareness of the existence of treatment centers or the availability of free and affordable treatment. Additionally, 11 participants expressed psychological barriers. The participants believed that addiction was enjoyable or they could overcome it on their own or did not believe that they needed treatment. A few excerpts from the participants are shown in Table 3. Some participants also highlighted the dangerous nature of crystal meth and its powerful impact that makes them continue using it, as well as the difficulty of quitting.

Some patients ($n = 7$) reported fearing being arrested or punished for seeking treatment as one of the major barriers to treatment. Four participants reported connecting with substance-using companions served as a preventer for treatment seeking. The participants faced other obstacles that rendered them unable to seek treatment, such as drug availability, social stigma associated with treatment ($n = 2$), work commitment ($n = 2$), and spouse unwillingness to quit (for women) ($n = 2$).

Two young female participants shared their experiences about a lack of spouse support. In these two cases, one male partner was afraid from impacting his reputation and the other wanted to consume drugs with his wife.

Perceived severity of addiction

Perceived severity of addiction refers to a person's perception about the severity of the negative consequences related to addiction. The participants ($n = 25$) described how substance abuse put them at risk of violence and self-harm. Additionally, participants ($n = 16$) highlighted legal trouble that might occur due to addiction. Some of the participants ($n = 12$) described the detrimental effect of addiction on their emotional, mental, and physical well-being including fatigue, weight loss, tooth loss, and psychological issues. In addition, seven patients mentioned how addiction affected their relationships with family. The participants stated these experiences, filled with serious consequences, as motivating them to seek treatment.

Perceived benefits of treatment

Patients' treatment engagement was also stimulated by the perceived benefits associated with getting a treatment. The majority of participants ($n = 18$) highlighted the positive changes experienced as a result of treatment, such as enhanced sleep, reduced pain, weight gain, and better physical appearance. Decreased cravings and overcoming addiction were two more benefits mentioned by several patients ($n = 12$) about the treatment they received.

Cues to action

The participants indicated several cues to action that encouraged them to seek treatment. Many participants ($n = 14$) stated that peer and family pressure encouraged them to engage in treatment. Additionally, the participants ($n = 14$) described how they were motivated to seek treatment by the story of recovering patients with SUD displayed on "Issam Kashish's program" on social media [24]. Another patient ($n = 5$) was stimulated by witnessing positive changes in their friends who were treated in this center. Additionally, legal issues or the risk of imprisonment for addiction encouraged five patients to consider treatment as an alternative to legal penalties.

Table 1 The characteristics of the participating patients

code	Sex	Age (years)	Province	Duration of addiction (years)	Types of substances used	education level	Marital status	Job	setting
2Pa1	Male	23	Al-Diwaniya	3	Crystal (Methamphetamine), valium tab	Primary school	Married	Low-income job	Al-Ataa
Pa2	Male	31	Baghdad	9	Crystal (Methamphetamine), valium tab, captagon tab	Secondary school	Married	Low-income job	Al-Ataa
Pa3	Male	45	Thi-Qar	15	Valium tab, cough syrup, tramadol tab., kemadrin tab.	Primary school	Married	Low-income job	Al-Ataa
Pa4	Male	20	Al-Diwaniya	4	Crystal (Methamphetamine)	Primary school	Single	Low-income job	Al-Ataa
Pa5	Male	26	Al-Diwaniya	8	Crystal (Methamphetamine), valium tab, captagon tab, kemadrin tab., Revotril tab. Artane tab.	Secondary school	Single	security guard	Al-Ataa
Pa6	Male	23	Maysan	7	Crystal (Methamphetamine)	Primary school	Single	Low-income job	Al-Ataa
Pa7	Male	24	Baghdad	2	Crystal (Methamphetamine)	Primary school	Married	Low-income job	Al-Ataa
Pa8	Male	20	Holy Kerbela	3	Crystal (Methamphetamine), captagon tab	Secondary school	Single	Low-income job	Al-Ataa
Pa9	Male	31	Wasit	6	Crystal (Methamphetamine), parkizol tab.	Primary school	Married	Low-income job	Al-Ataa
Pa10	Male	31	Kirkuk	11	Crystal (Methamphetamine), valium tab parkizol tab, marijuana, Revotril tab, zolam®ฎ tab(alprazolam), tramadol tab, heroin	Secondary school	Single	soldier	Al-Qanah
Pa11	male	33	Baghdad	5	Crystal (Methamphetamine), captagon tab, parkizol tab., valium tab., marijuana	Primary school	Married	Low-income job	Al-Qanah
Pa12	Male	24	Holy Kerbela	11	Crystal (Methamphetamine), captagon tab, marijuana, heroin,	Primary school	Single	Low-income job	Al-Qanah
Pa13	Male	17	Baghdad	4	Crystal (Methamphetamine), captagon	Primary school	Single	unemployed	Al-Qanah
Pa14	female	26	Baghdad	1.5	Crystal (Methamphetamine)	Illiterate	Married	Tailor	Al-Qanah
Pa15	Male	35	Baghdad	3	Crystal (Methamphetamine), cough syrup,	Primary school	Married	Low-income job	Al-Qanah
Pa16	Male	30	Baghdad	6	Crystal (Methamphetamine)	Primary school	Married	Low-income job	Al-Qanah
Pa17	Male	31	Basra	13	Crystal (Methamphetamine), captagon tab, marijuana, parkizol tab., lyrica tab.	Secondary school	divorced	Low-income job	Al-Qanah
Pa18	Male	26	Kirkuk	9	Crystal (Methamphetamine), captagon tab.	Primary school	divorced	Low-income job	Al-Qanah
Pa19	Male	19	Thi-Qar	5	Crystal (Methamphetamine)	Secondary school	Single	unemployed	Al-Qanah
Pa20	Male	19	Baghdad	5	Crystal (Methamphetamine)	Illiterate	Single	Low-income job	Al-Qanah
Pa21	Male	18	Baghdad	6	Crystal (Methamphetamine), parkizol tab	Secondary school	Single	unemployed	Al-Qanah
Pa22	Male	23	Thi-Qar	3.5	Crystal (Methamphetamine), captagon tab	Primary school	Single	Low-income job	Al-Qanah
Pa23	male	19	Al-Diwaniya	6	Crystal (Methamphetamine), captagon tab, parkizol tab	Primary school	Single	Low-income job	Al-Qanah
Pa24	Male	30	Baghdad	11	Crystal (Methamphetamine), parkizol tab., lyrica tab. Valium tab, cough syrup, tramadol tab. Somadril tab., marijuana	Bachelor	Married	Low-income job	Al-Qanah
Pa25	Male	31	Baghdad	1.5	Crystal (Methamphetamine)	Primary school	Married	Low-income job	Al-Qanah
Pa26	female	27	Baghdad	1 month	Crystal (Methamphetamine), Lyrica tab. Valium tab	Primary school	Divorced	Housewife	Al-Qanah
Pa27	female	29	Baghdad	5	Crystal (Methamphetamine)	Secondary school	Married	Housewife	Al-Qanah
Pa28	female	24	Baghdad	2	Crystal (Methamphetamine)	Secondary school	divorced	Housewife	Al-Qanah
Pa29	female	42	Al-Najaf	2 months	Pethidine amp. Valium tab	Primary school	Married	Housewife	Al-Qanah
Pa30	female	22	Erbil	7	Crystal (Methamphetamine), Lyrica tab.	Primary school	Married	Housewife	Al-Qanah
Pa31	Male	24	Baghdad	5	parkizol tab., lyrica tab. Valium tab, tramadol tab. captagon tab., Allermin syrup	Primary school	Single	security guard	Al-Ataa
Pa32	Male	33	Thi-Qar	2	Crystal (Methamphetamine)	Primary school	Single	Low-income job	Al-Ataa
Pa33	Male	33	Baghdad	7	Crystal (Methamphetamine), parkizol tab	Secondary school	Married	Low-income job	Al-Ataa

Table 2 Cumulative summary of the participants characteristics

Characteristics	Subcategories	Frequency *N* = 33	%
Age	< 25 y	15	45.45
	25–40 y	18	54.54
Gender	Male	27	81.81
	Female	6	18.18
Patient education level	Illiterate	2	6.06
	Primary school	20	60.6
	Secondary school	10	30.3
	University	1	3.03
Marital status	Married	15	45.45
	Single	14	42.42
	divorced	4	12.12
patient job	Employee	3	9.09
	Housewife	6	18.18
	Low-income job	21	63.63
	Unemployed	3	9.09
Types of substances used	Crystal (Methamphetamine)	30	90.9
	Captagon tab,	11	33.33
	Valium ®₪ tab	10	30.30
	Parkizol ®₪ tab.	9	27.27
	Lyrica ®₪ tab.	5	15.15
	marijuana	5	15.15
	Tramadol ®₪ tab.	4	12.12
	cough syrup (codeine containing)	3	9.09
	kemadrin ®₪ tab.	2	6.06
	heroin	2	6.06
	Revotril ®₪ tab.	2	6.06
	Allermin ®₪ syrup	1	3.03
	Pethidine ®₪ amp.	1	3.03
	Artane ®₪ tab.	1	3.03
	Somadril ®₪ tab	1	3.03
	zolam®₪ tab(alprazolam)	1	3.03
Number of substance abuse	Single substance abuse	11	33.33
	Polysubstance use	22	66.66
Patient Income	low	29	87.87
	medium	3	9.09
	high	1	3.03

Subjective norms

In the present study, subjective norms positively influenced patient's acceptance of treatment plans. For many participants($n = 32$), treatment involvement was s triggered by continuous support and encouragement from family and friends. such as financial support, visits, and emotional support during the hospitalization period.

Facilitating conditions for treatment

Within the research sample, the facilitating conditions can be classified into supportive conditions during hospitalization and post-discharge services. The 33 participants explained how different elements of the supportive conditions assisted in facilitating their continued engagement such as ensuring respect for their privacy, availability of free treatment, creating a positive treatment center environment, and positive experiences and satisfaction with the services. All patients expressed their intention to adhere to treatment when they are discharged to maintain their health and for the sake of their loved ones.

The participants appreciated the clean, organized, and respectful atmosphere of the center. They also praised the availability of recreational facilities, food, and attentiveness of the staff.

On the other hand, participants explained one of the most important post-discharge services was any-time access to addiction treatment centers, with the availability of post-discharge medication. In addition to this continuous accessibility, ongoing support from the treatment center including social work services, psychological support, and relapse avoidance strategies plays an essential role. Another important enabler is government financial assistance to patients to start-up capital for new businesses.

Susceptibility to relapse

Following addiction treatment, some patients were at a high risk of relapsing to substances despite their initial success in abstinence. Many of the participants highlighted that they could easily get substances due to widespread availability($n = 24$), and affordability ($n = 27$) and some participants said they could even get them for free. In addition, some participants ($n = 13$) explained that exposure to environments where friends with SUD were prevalent could pose a high relapse risk.

Discussion

The factors influencing treatment acceptance among patients with substance abuse is a complicated issue that can be better understood by applying the Health Belief Model. The employment of the HBM has provided comprehensive information on the impact of various domains on treatment acceptability. Our findings showed that most patients have a good willingness for treatment acceptance because they had perceived benefits for treatment, cues to action, good subjective norms, and facilitating conditions. These four domains of the HBM were strongly connected with motivation to initial engagement and adherence to treatment. On the other hand, there were some perceived barriers to seeking treatment, in addition to susceptibility to relapse which can prevent long-lasting recovery from substance abuse. Since the countries in the Middle East region have in general common features, the findings of this study can help health authorities in the region to identify potential factors affecting drug abusers' willingness to accept treatment.

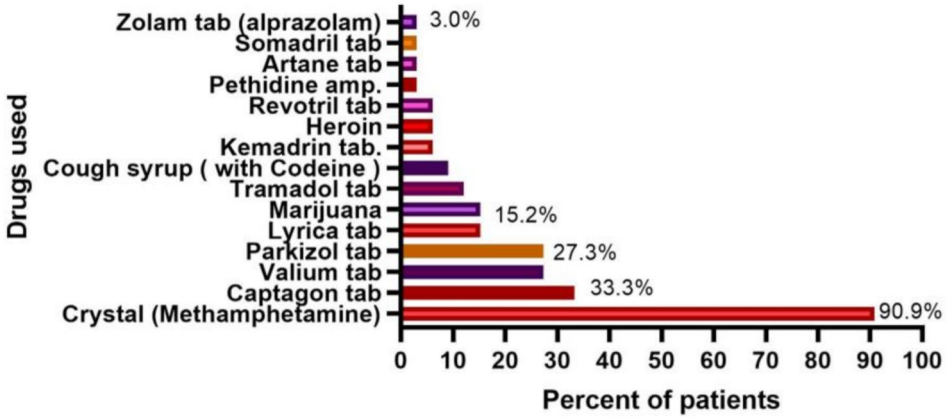

Fig. 1 The types and prevalence of used drugs/substances by the study patients

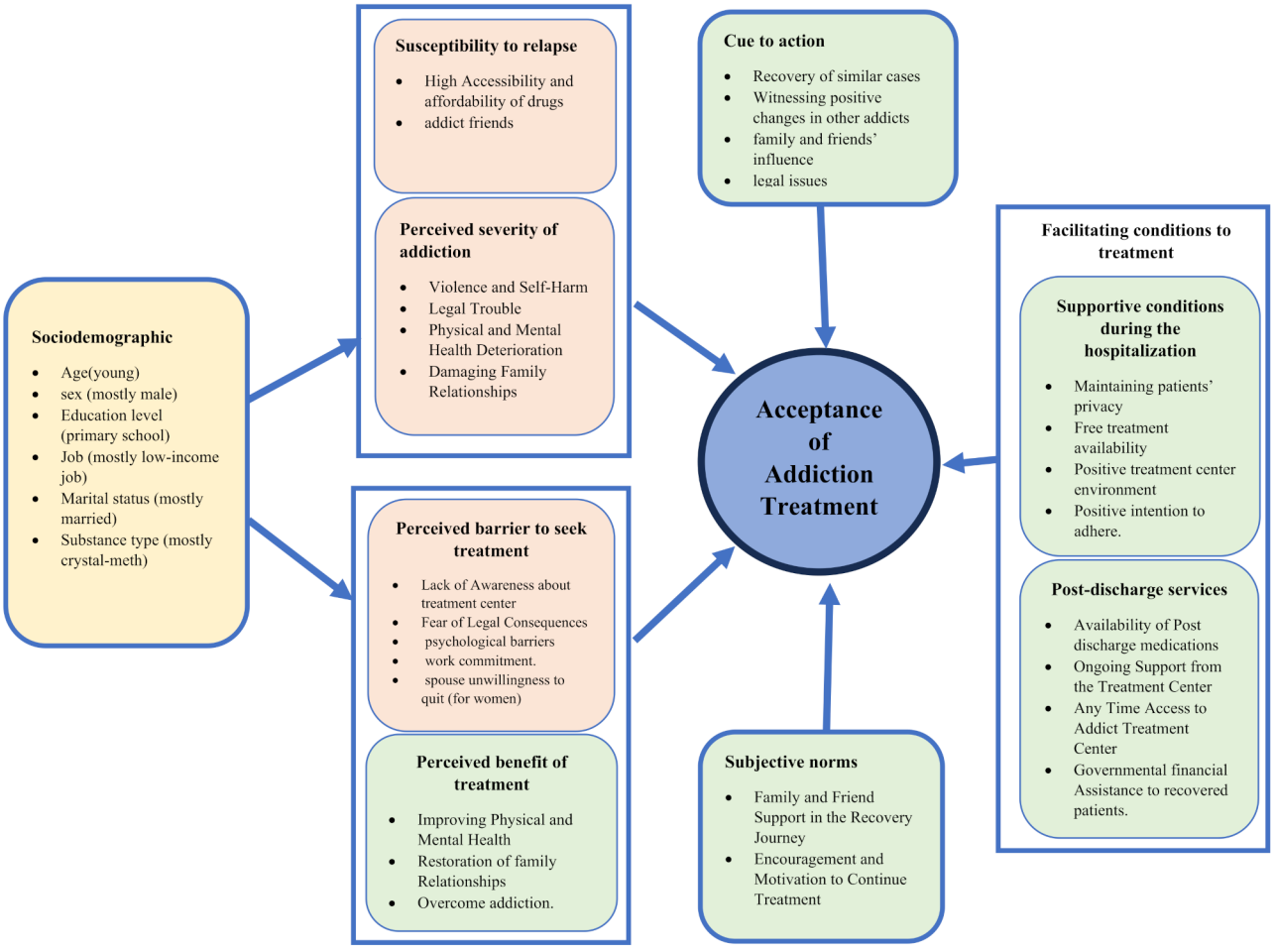

Fig. 2 The Factors influencing treatment acceptance among patients with substance abuse according to the Health Belief Model

Perceived barriers to seeking treatment

In our study, the major barrier indicated by the participants' comments was a lack of awareness about the treatment centers. The participants were unaware of the facilities available, opportunities for treatment, or the beneficial effects of such therapies. Lack of information may arise from inadequate outreach activities, education, and campaigning regarding available substance abuse treatment centers. Similar studies were carried out in India and Bangladesh, stating that being unaware of treatment facilities and costs were considered barriers to treatment [13, 25]. Addiction-related negative attitudes

Table 3 The summary of patients' responses: themes, subthemes and quotations

	Themes	Sub-themes	frequency	Patients' Quotes
1	Perceived barriers to seeking treatment	Lack of awareness about treatment centers.	12	"I did not know there were hospitals like this for treatment" (pa14).
				"I was not aware of the existence of free treatment centers, as I knew there were specialized doctors and treatment required spending a lot of money" (pa15).
		Psychological barriers	11	"I had no desire for treatment because I love the feeling I get from drugs. I felt like a king and forgot all my worries." (pa1).
				"I felt like I didn't need treatment because I wasn't suffering from anything." But it's like cancer, eating away your body." (pa25).
				"Crystal meth prevents me from seeking treatment, it makes me not want my mother or father, I only want crystal meth" (pa13).
				"All drugs on one side, and crystal meth on the other, it's difficult to get rid of" (pa17).
		Fear of Legal Consequences	7	"Fear of legal issues: 85 to 95% of addicted individuals want the opportunity for treatment, but they fear legal consequences. Drugs by their nature generate doubt, fear, and terror in a person" (pa17).
				"At first, I was afraid of hospitals because they told me that these hospitals are a facade and that if we go there for treatment, they will arrest us" (pa20).
				"I didn't know that there are treatment centers that help patients without imprisoning them" (pa22).
		peers effect	4	"I used to think that treatment centers keep patients for 40 days, then imprison them. This is what my drug-using friends told me" (pa22).
		Other barriers: drug availability, social stigma associated with treatment,	2	"The drug is available and I can get it easily" (pa33).
				"I did not want people to know that I was a drug user, so I did not inquire about treatment centers" (pa18).
		work commitment	2	"I wasn't able to come for treatment because of the nature of my work. Now my contract is over, so I came to get treatment" (pa24).
		spouse unwillingness to quit (for women)	2	"I wanted to seek treatment, but my husband is a suspicious man who is jealous of my personality and also fears for his reputation" (pa30).
				"My husband is addicted to pethidine (opioids), and I used to prevent him from using the substance at home. However, after I started using the same drug(pethidine), we began using it together at home" (pa29).
2	Perceived severity of addiction	violence and self-harm	25	"Addiction leads to suicide and death. If you don't get drugs, you might kill your family or anyone who stops you" (pa1).
				"A person who can't control their mind might end their own life or the lives of their family" (pa2).
		legal trouble	16	"Addiction is considered dangerous. Drug enforcement agencies may arrest you" (pa7).
				"The end of addiction is either death or prison" (Pa19).
		Physical and mental health deterioration	12	"Physical exhaustion. You can't run short distances. You sleep and wake up without full consciousness" (pa8).
				"Drugs make the person isolated and depressed" (pa13).
		Damaging family relationships	7	"The risks are many, starting with distancing yourself from family. When my children left home, I wished they wouldn't come back so I could use the substance freely without them seeing me. My mother would call me, but I didn't answer her calls" (pa29).
				"Addiction makes you cross all boundaries in your life; it made me do things I never imagined I would do in my life like stealing my mother's wedding ring, stealing money from my sister's purse and her jewelry, stealing my brother's phone, and more" (pa17).
3	Perceived benefits of treatment	Improving physical and mental health	18	"In the first days of my hospitalization, I was exhausted, my face was dark with dark circles under my eyes, and my bones hurt me, but now, thank God, I feel relieved with the treatment" (pa8).
				"For physical comfort, as previously, I couldn't leave my room for the bathroom due to exhaustion, but now I can go out to work" (pa20).
		overcoming addiction	12	"Treatment is good; it helps me get rid of toxins and reduces my craving for drugs. I have confidence in the treatment" (pa12).
				"The benefit of treatment is to get rid of this substance from my body, which I was using and makes me forget about it" (pa27).

Table 3 (continued)

	Themes	Sub-themes	frequency	Patients' Quotes
4	Cues to action	Family and friends' influence	14	"My brother advised me to get treatment for the sake of my family and children. My wife, when she found out, told me that she would leave me if I didn't get treatment" (pa9).
				"I came for treatment for my father and my son. One day my son, who is 6 years old, came to me and gave me the vape and spit on me before leaving. This incident affected me and encouraged me to seek treatment" (pa11).
		Recovery of similar cases	14	"I saw Issam Kashish's program on TikTok. There was an episode with a recovering addict who had a big impact on me. I decided to get treatment and contacted him. He brought me to this center" (pa17).
				"This hospital is in Baghdad and I don't go to Baghdad often. I watched a whole episode of a program about addiction called "Their Stories with Issam Kashish." I told my brother about the hospital because I wanted to get treatment and he brought me here" (pa6).
		Witnessing positive changes in other addicts	5	"I saw my friends who were treated, and they returned to normal and got jobs. I got bored with my situation and told my father about my intention to seek treatment and he brought me to this hospital" (pa7).
		legal issues	5	"Because I fear prison and want to avoid it; that's why I sought treatment" (pa20).
			1	"When I was addict to drugs and calling people who supplied me with the substance, they would sometimes tell me it was out of stock. Once, a person called me and tried to blackmail me, saying he wanted to get close to me. That's when I decided to quit addiction" (pa26).
5	Subjective norms	Family and friend support and encouragement in the recovery journey	32	"My family gives me support and encourages me to get better and look towards my future, my mom stays in touch with me and comes to visit me" (pa13).
				"There is support from my family. My wife used to send me flowers, and I was very happy with this encouragement" (pa24).
				"Financial and moral support is available from my family. They call and encourage me to continue with the treatment, telling me that I am strong and brave" (pa29).
6	Facilitating conditions for treatment	Supportive conditions during the hospitalization		
		Maintaining patients' privacy	33	"Privacy is very good. The best thing here is that when I say something, it remains a secret and they don't even tell my father" (pa26).
		Positive treatment center environment		"It's very good. There is a football field and a gym. They give us four meals a day. This place is very comfortable." (pa13).
				"It is a clean and organized treatment center. You don't feel like you're in jail. In jail, they treat you harshly, but here in the hospital, they treat you with respect and courtesy." (pa6).
		Post-discharge services		
		Availability of Post discharge medications	11	"I only need medication after discharge " (pa18).
		Ongoing Support from the Treatment Center	9	"After I leave the hospital, if I start craving drugs again, I don't want them to abandon me and not welcome me when I come to them. I want them to stay in touch with me and not leave me alone" (pa2).
				"What I need from the treatment center is for them to provide me with medication, to stay in touch with them, and to give me counseling sessions" (pa27).
		Governmental financial Assistance to recovered patients	3	"….I heard there is financial assistance for recovering people to open business projects" (pa3).

Table 3 (continued)

	Themes	Sub-themes	frequency	Patients' Quotes
7	Susceptibility to relapse	High accessibility and affordability of drugs	24	"Drugs are easily accessible because they are available on the street, not openly, but they are available, many people engage in drug trafficking." (pa18).
			27	"I easily get substances, and I also have many people who deliver substances to my doorstep, and I have money to pay them, they can be delivered it to me for free." (pa5).
		addict friends	13	"I have a friend who used to approach me and tell me about this substance, that it would make me forget my worries, and that just trying it would benefit me, and he told me, "I am not young if I do not try it." (pa16).

held by some patients included the notions that addiction was pleasurable, they could overcome it on their own, and they did not need treatment because they did not have a problem. This acted as a barrier preventing them from realizing they needed medical help. On the same lines, an Indian study identified a significant barrier to receiving medical care was the patients' initial lack of belief in their need for care. The patients may believe that they can manage their substance abuse anytime they want. Alternatively, they may be ignorant that they have a problem that needs to be addressed [13]. According to another research conducted in the U.S, Latinos were less likely to realize that they had a problem, which made them hesitant to believe they needed treatment [26]. In a recent Iraqi study, community pharmacists believed that individuals with drug use disorders frequently placed a greater value on the immediate euphoric effects of drugs compared to the potential long-term health consequences [20].

The third barrier that the participants indicated was their fear of legal ramifications. This concern stemmed from their misinformation about treatment centers and made them reluctant to seek help for fear of being arrested or imprisoned. Likewise, a study conducted in the U.S. listed one of the psychosocial dimensions of fear about arrest, prosecution, and incarceration for the use of drugs if they disclose their drug use [27]. This was also repeated in the study carried out in Ukraine which found one-fourth of participants fear police harassment as a barrier to opioid agonist treatment entry [28]. Similarly, a UAE study listed that patients were worried that they would be hunted down by law enforcement and find themselves in jail [29]. Two females did not have the freedom to access the treatment center because their husbands did not support them. Similarly, a study conducted in Iran indicated that women with drug abuse are less likely to have social support and are stigmatized more than men [30]. Increased social integration with others outside of the drug usage circle and family support—particularly from the spouse—that could encourage the development of a supporting system for rehabilitation [31].

Perceived severity of addiction

The perceived severity of addiction was demonstrated in this study sample. The majority of patients emphasized the negative consequences of addiction, such as self-harm and violence, as well as their physical and mental health concerns, including fatigue, weight loss, tooth loss, and psychological issues. They believed that the end of addiction was either death or imprisonment. Addiction has an impact on a person's entire life, not only their physical health. It has been shown to worsen social and familial relationships, leading to the addict's social isolation and

infrequent interactions with friends. The patients are more in need of assistance to manage their situations and overcome the detrimental effects of addiction when they are aware of the severity of their condition and their lack of control over it [32]. One of the motivations for getting therapy was the health damage resulting from substance use [13]. In a similar vein, a US research that emphasized the detrimental effects of substance use disorder—such as declining health, strained relationships, and legal ramifications— led patients to seek medical care [15].

Perceived benefits of the treatment

In our study, perceived benefits of the treatment were also identified. Most of the participants cited that the substance abuse treatment improved their physical and mental health, sleep, and eating habits. Additionally, some participants felt that treatment helped them to overcome their addiction and restore relationships with their families which were broken due to addiction. An American study indicates that comprehensive treatment programs that include – health and social services provided along with substance abuse treatment – help to reduce posttreatment substance abuse, and enhance health and social functioning [33]. These findings demonstrate the benefits of the acceptance of substance abuse treatment and highlight the significance of motivating addicts to get support and work toward recovery.

Subjective norms

On the other hand, this study showed the vital role of subjective norms, which denote a person's perception of social pressure that encourages them to seek medical help and quit addiction. Many patients acknowledged that their adherence to treatment plans due to the encouragement and ongoing support provided by their families, which included financial and emotional support during the hospitalization. Likewise, a U.S. study indicated that treatment adherence was correlated with greater levels of treatment motivation, both before and throughout treatment [34]. The patient is more ready for treatment persistence when they get sufficient social support [15].

Cues to actions

Concerning cues to actions, the major triggers of participants' acceptance of treatment included the urgent requests from families, friends, the media (social media, television), witnessing positive change in other patients with SUD, and fear of legal consequences. Furthermore, patients expressed positive intention to adhere to post-discharge treatment to relieve their families and loved ones. The patient's legal concern and pressure from family or friends lead the patient to assess their behavior, realize it is as problematic, and decide to seek medical care [35]. A US study confirmed the perceived pressure to substance abuse treatment entry including 61% of participants reported family pressure, 41% reported non-familial social pressure, and 24% cited legal mandates as justification for seeking treatment [36].

The participants emphasized the importance of media, particularly social media, and television, in spreading knowledge about the availability of treatment centers through their remarks on the awareness campaigns. For example, a talk show on state television entitled "Their Stories with Issam Kashish" that includes interviews with addiction-recovered patients designed to present success stories of people who have overcome addiction, which has effectively contributed to encouraging patients with SUD to seek treatment [24].

Facilitating conditions for treatment

Efficient rehabilitation from substance abuse can be greatly enhanced by certain facilitating conditions. Within the research sample, when describing the facilitating conditions for substance abuse treatment, it is important to recognize that several elements promote the acceptance of treatment programs. During hospitalization, the participants listed that the treatment center protected their privacy by talking to them alone and not disclosing any information (not even to their parents), and offered free treatment. Additionally, they mentioned good center amenities, which include pleasant rooms, meals, a phone to communicate with family, and compassionate staff. These facilitating factors motivated them to accept treatment. When the treatment facility keeps patients' personal and medical records about their addictions confidential, patients feel secure and confident, which encourages them to continue treatment. A study conducted in Kyrgyzstan revealed that the obstacle facing service acceptance by injectable drug abusers is the fear that the personnel at governmental medical institutions who provide needle and syringe service may reveal personal information to authorities [37]. Several studies showed that treatment involvement is negatively impacted by a lack of positive relationships between patients and treatment staff and expensive service [32, 38, 39]. Offering free treatment services motivates more substance abusers to seek help and adhere to treatment programs [39–41].

Furthermore, the patients conveyed their request for getting post-discharge medications, psychological, and social counseling in addition to governmental financial support to the recovered people. Receiving ongoing medical care raises the chances of successful recovery and reduces the possibility of relapse. For many patients, medication plays a significant role in their course of care, particularly when they are used with behavioral treatments like counseling and psychotherapy [42]. The

majority of the study's participants are low-income workers who turn to drugs to escape their harsh life. Assisting them in overcoming their daily challenge through the provision of income-generating activities or monetary awards can increase their acceptance of the delivered services [43].

Susceptibility to relapse

Regarding susceptibility to relapse, the majority of study participants reported that the substance was inexpensive and easily accessible. They also revealed that the presence of friends with SUD had a role in their addiction. These two elements make them susceptible to relapse after discharge. The availability and accessibility of the substance poses a significant challenge to long-term recovery, even in cases when the patient is motivated to heal. A previous study conducted in Iraq reveals that the country's geographic location surrounded by numerous nations with high prevalence of drug-abuse, coupled with lax border controls. All these factors played a role in the growth and spread of drug abuse problem [6]. Similarly, a prior study carried out in Iraq revealed that the prevalence of SUD among youth was attributed to their increased susceptibility to peer pressure, which is thought to be the most significant factor influencing youth. As young people are ready to pick up new skills, peer pressure plays a significant role in the start of substance use in this age group [44]. The association between peer pressure and teenage drug use may also be modulated by family conflict, which can also affect the intensity of substance use. Negative family factors make adolescents more susceptible to delinquent behaviors, substance misuse, and negative peer influence. Socialization by peers has a considerable impact on both the onset and maintenance of substance use [45]. Untreated mental health issues may trigger some patients to use illegal drugs or substances. Cross-sectional studies found that Iraqis have high prevalence of depression and anxiety [46, 47]. This highlights the frequent co-occurrence of mental health issues and addiction. The order of causality can vary, with addiction sometimes preceding mental illnesses like depression or anxiety, or vice versa, with substance abuse exacerbating existing vulnerabilities [48]. Strengthening the cooperation between the Ministry of Health and security agencies to develop strategies to combat the promotion and cross-border smuggling of drugs.

Limitations

As other qualitative studies, the finding generalizability may be limited and the new HBM domains need to be validated quantitatively in a future study. The study sample had unequal distribution between genders which reflects the reality of admitted patients with SUD to these treatment centers. Additionally, interpretation bias cannot be totally excluded although peer review and discussion of the findings with the research team were used to ensure the credibility of the interpretations.

Conclusion

The HBM successfully explained the factors impacting treatment acceptance among patients with substance abuse. Our findings showed that the majority of patients adhere to their treatment plans well due to perceive benefit of treatment, perceive severity of addiction, positive subject norms and alarming cues to action. The lack of awareness about treatment facilities, addiction enjoyment, and fear of legal consequences were the most stated barriers to seeking treatment. The state TV awareness program about the availability of treatment centers was helpful and represented main the cue to action. Furthermore, friends and family can provide constant encouragement and support for maintaining treatment adherence. Improving the enabling conditions and removing current obstacles are necessary to increase treatment acceptance among drug-abusing patients. A multidimensional awareness campaign is required to enhance the patient's knowledge and chances of treatment acceptance. This campaign must concentrate on strengthening the perceived benefit of addiction abstaining, dismissing misconceptions, and bringing attention to and educating the public about the severity of drugs and the negative consequences of addiction. Unfortunately, the majority of patients indicated that substances are easily accessible and inexpensive which make them vulnerable to post-discharge relapse. Additionally, the cooperation between health officials and security agencies is critical to develop strategies combating the promotion and cross-border smuggling of drugs. Finally, health officials can enable more patients to make responsible choices of getting treatment and overcoming addiction by establishing additional drug-abuse treatment centers across the nation.

Supplementary Information

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Supplementary Material 1

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Author contributions

Author contributionsS H M participated in data collection, analyzing the qualitative data, and writing the first manuscript draft. A A Al-J did the designing, and execution of the study, analyzing data, writing, and reviewing the manuscript. H A Al participated in the study, edited, and helped to finalize the manuscript. All authors reviewed and approved the final draft.

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Data availability
The dataset(s) supporting the conclusions of this article is(are) included within the article.

Declarations

Ethics approval and consent to participate
Consent was obtained from the patients before starting the interviews. Participation and interview recording was voluntary. No incentive was offered to the participants. The study received approval from the Ethical Committee at our college and the participating hospitals. The names of patients were de-identified for their confidentiality.

Competing interests
The authors declare no competing interests.

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References

1. Tommasello AC. Substance abuse and pharmacy practice: what the community pharmacist needs to know about drug abuse and dependence. Harm Reduct J. 2004;1:1–15.
2. United Nations Office on Drugs. and Crime. [cited 2024 Jun 8]. World Drug Report 2023. Available from: https://www.unodc.org/unodc/en/data-and-analysis/world-drug-report-2023.html
3. Al-hemiary N, Talib M. Substance Abuse and Dependence: In the Records of the Iraqi Hospitals and Health Centers During the Year 2008. 2010;9(2):2008–11.
4. Al-Hemiary J, Hashim NT, Al-Diwan MK, Abdul Razzaq J. Alcohol and drug abuse in post-conflict Iraq. J Fac Med. 2015;57(4):290–4.
5. Muzil J, Abdulwahid DA, Abed A. Substance abuse in Iraq, quantifying the picture. J Popul Ther Clin Pharmacol. 2023;30(12).
6. Aqrawi R, Humphreys K. Responding to rising substance misuse in Iraq. Subst Use Misuse. 2009;44(12):1744–8.
7. Jumaah ZS, Al-Jumaili AA. The perceptions of General Population About Mental Health Services in Baghdad, Iraq: a qualitative study. Iraqi J Pharm Sci. 2023;32:283–90.
8. Anyanwu PA, Tata V, Varisco TJ, Essien EJ, Johnson ML, Gilbert LR et al. Understanding the financial barriers to treatment among individuals with opioid use disorder: A focus group study. Res Soc Adm Pharm. 2023;19(3):5. Available from: https://doi.org/10.1186/s12954-024-01133-4
9. Huhn AS, Hobelmann JG, Strickland JC, Oyler GA, Bergeria CL, Umbricht A, et al. Differences in availability and use of medications for opioid Use Disorder in Residential Treatment settings in the United States. JAMA Netw Open. 2020;3(2):1–13.
10. Barry CL, McGinty EE, Pescosolido BA, Goldman HH. Stigma, discrimination, treatment effectiveness, and policy: public views about drug addiction and mental illness. Psychiatr Serv. 2014;65(10):1269–72.
11. Al- Hasnawi S, Al Hemyary N, Lafta M. Public attitudes toward substance abuse. Karbala Med J. 2007;1(2):162–6.
12. Al-Hasnawi S. Attitude of residents and General Practitioners toward Substance Abuse in Iraq. Med J Babylon. 2006;3(1–2):107–12.
13. Sarkar S, Thakur A, Sood E, Mandal P. Barriers and facilitators of Addiction Treatment: a qualitative study. Int J Ment Health Addict. 2022;20(2):672–90.
14. Glanz K, Rimer Bk, Viswanath K. Health and Health. 4Th editio. 2002.
15. Dillon PJ, Kedia SK, Isehunwa OO, Sharma M. Motivations for Treatment Engagement in a residential substance Use Disorder Treatment Program: a qualitative study. Subst Abus Res Treat. 2020;14.
16. Al-Metwali BZ, Al-Jumaili AA, Al-Alag ZA, Sorofman B. Exploring the acceptance of COVID-19 vaccine among healthcare workers and general population using health belief model. J Eval Clin Pract. 2021;27(5):1112–22.
17. Fadaei MH, Farokhzadian J, Miri S, Goojani R. Promoting drug abuse preventive behaviors in adolescent students based on the health belief model. Int J Adolesc Med Health. 2022;34(3):1–8.
18. Bonar EE, Rosenberg H. Using the health belief model to predict injecting drug users' intentions to employ harm reduction strategies. Addict Behav. 2011;36(11):1038–44. Available from: https://doi.org/10.1016/j.addbeh.2011.06.010
19. Predicting Health Behaviors Using the Health Belief Model. - iResearchNet. [cited 2024 Dec 29]. Available from: https://psychology.iresearchnet.com/health-psychology-research/health-belief-model/predicting-health-behaviors-using-the-health-belief-model/
20. Mikhael EM, Jebur NJ, Jamal MY, Hameed TA. Perception, experience, and practice of Iraqi community pharmacists towards customers with substance use disorder. SAGE Open Med. 2024;12.
21. Kerr C, Nixon A, Wild D. Assessing and demonstrating data saturation in qualitative inquiry supporting patientreported outcomes research. Expert Rev Pharmacoeconomics Outcomes Res. 2010;10(3):269–81.
22. Rosenstock IM. The health belief model and personal health behavior. Health Educ Monogr. 1974;2(4):354–86.
23. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3(2):77–101.
24. TV presenter issam kashish. Their stories. Iraq. 2022. Available from: https://www.youtube.com/playlist?list=PLTs3sxp3sjr6pedlpTQj07uCFvn3prZav
25. Shariful Islam SM, Biswas T, Bhuiyan FA, Islam MS, Rahman MM, Nessa H. Injecting drug users and their health seeking behavior: a cross-sectional study in Dhaka, Bangladesh. J Addict. 2015;2015:1–8.
26. Pinedo M, Zemore S, Rogers S. Understanding barriers to specialty substance abuse treatment among Latinos. J Subst Abuse Treat. 2018;94(June):1–8. Available from: https://doi.org/10.1016/j.jsat.2018.08.004
27. Jessup M, Francisco S, EXTRINSIC BARRIERS TO SUBSTANCE ABUSE TREATMENT, AMONG PREGNANT DRUG DEPENDENT WOMEN. J DRUG ISSUES EXTRINSIC. 2003;33(2):285–304.
28. Zelenev A, Shea P, Mazhnaya A, Rozanova J, Madden L, Marcus R et al. Assessment of barrier severity and willingness to enter opioid agonist treatment among people who inject drugs in Ukraine. Drug Alcohol Depend. 2018;190:82–8. Available from: https://doi.org/10.1016/j.drugalcdep.2018.05.027
29. Pflanz-Sinclair C, Matheson C, Bond CM, Almarzouqi A, Lee AJ, Batieha A, et al. Physicians' experiences of SBIRT training and implementation for SUD management in primary care in the UAE: a qualitative study. Prim Heal Care Res Dev. 2018;19(4):344–54.
30. Raheimi S, Jalali A, Jalali R. Social support among women undergoing methadone maintenance treatment in Iran. J Addict Nurs. 2018;29(3):179–87.
31. Motyka MA, Al-Imam A, Haligowska A, Michalak M. Helping women suffering from Drug Addiction: needs, barriers, and challenges. Int J Environ Res Public Health. 2022;19(21).
32. Yang Y, Perkins DR, Stearns AE. Barriers and facilitators to Treatment Engagement among clients in Inpatient substance abuse treatment. Qual Health Res. 2018;28(9):1474–85.
33. Cao D, Marsh JC, Shin HC, Andrews CM. Improving health and social outcomes with targeted services in comprehensive substance abuse treatment. Am J Drug Alcohol Abuse. 2011;37(4):250–8.
34. Kelly SM, O'Grady KE, Mitchell SG, Brown BS, Schwartz RP. Predictors of methadone treatment retention from a multi-site study: A survival analysis. Drug Alcohol Depend. 2011;117(2–3):170–5. Available from: https://doi.org/10.1016/j.drugalcdep.2011.01.008
35. Goodman I, Peterson-Badali M, Henderson J. Understanding motivation for substance use treatment: The role of social pressure during the transition to adulthood. Addict Behav. 2011;36(6):660–8. Available from: https://doi.org/10.1016/j.addbeh.2011.01.011
36. Marlowe DB, Kirby KC, Merikle EP, Festinger DS, McLellan AT. Multidimensional assessment of perceived treatment-entry pressures among substance abusers. Psychol Addict Behav. 2001;15(2):97–108.
37. Deryabina A, El-Sadr WM. Uptake of needle and syringe program services in the Kyrgyz Republic: Key barriers and facilitators. Drug Alcohol Depend. 2017;179(August):180–6. Available from: https://doi.org/10.1016/j.drugalcdep.2017.07.002

38. Palmer RS, Murphy MK, Piselli A, Ball SA. Substance user treatment dropout from client and clinician perspectives: a pilot study. Subst Use Misuse. 2009;44(7):1021–38.
39. Khazaee-pool M, Moeeni M, Ponnet K, Fallahi A, Jahangiri L, Pashaei T. Perceived barriers to methadone maintenance treatment among Iranian opioid users. 2018;(July):1–10.
40. Maddux JF, Prihoda TJ, Desmond DP, TREATMENT FEES AND RETENTION ON METHADONE. MAINTENANCE Several reports have suggested that required treatment fees impair retention on methadone maintenance. In a controlled study, 152 illicit opioid users admitted to methadone maintenance were randomly. 1994;24(June 1993):429–43.
41. Hung A, Blalock DV, Miller J, McDermott J, Wessler H, Oakes MM, et al. Impact of financial medication assistance on medication adherence: a systematic review. J Manag Care Spec Pharm. 2021;27(7):924–35.
42. National Institute On Drug Abuse. Principles of Drug Addiction Treatment: A Research-Based Guide (Third Edition). Adv Addict Sci. 2018;3(January):1–75. Available from: https://www.drugabuse.gov/publications/principles-drug-addiction-treatment-research-based-guide-third-edition/frequently-asked-questions/what-are-unique-needs-pregnant-women-substance-use
43. Oraby D. Harm reduction approach in Egypt: the insight of injecting drug users. Harm Reduct J. 2013;10(1):1–5.
44. Mohammed QQ. Perceived stigma and treatment-seeking behavior in individuals with Substance Use Disorder in Baghdad. J Contemp Med Sci. 2016;2(4):153–7.
45. Wu NS, Lu Y, Sterling S, Weisner C. Family environment factors and substance abuse severity in an HMO adolescent treatment population. Clin Pediatr (Phila). 2004;43(4):323–33.
46. Kathem SH, Al-Jumail AA, Noor-Aldeen M, Najah N, Ali Khalid D. Measuring depression and anxiety prevalence among Iraqi healthcare college students using hospital anxiety and depression scale. Pharm Pract (Granada). 2021;19(2):1–8.
47. Al-Jumaili AAA, Aljuboori SB, Kubba AARM, Fathel R, Talab H. Evaluate factors influencing Depression in Baghdad: using deck-depression inventory. Inov Pharm. 2019;10(3):6.
48. NIDA. 2022, March 22. Addiction and Health. Retrieved from. [cited 2024 Mar 23]. Available from: https://nida.nih.gov/publications/drugs-brains-behavior-science-addiction/addiction-health

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