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Current challenges in caring for injection drug users with human immunodeficiency virus infection in Pakistan

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Abstract

The stigmatized status of injecting illicit drugs use and human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome in Pakistan, enlists HIV positive injection drug users (IDUs) at preeminent risk for poor mental health. This study aims to investigate the potential link between enacted HIV stigma, community attachment, and mental health problems in HIV-positive IDUs, along with mediating role of community attachment and moderating role of drug type. Correlation analysis revealed that enacted HIV stigma and community attachment were significantly negatively associated with mental health. Mediation analysis indicated that enacted HIV stigma influences mental health indirectly by shaping individuals' level of attachment to the community of IDUs. Moderation analysis revealed that synthetic illicit drugs significantly moderated the association between enacted HIV stigma and mental health.The findings highlight the need for targeted interventions addressing enacted HIV stigma among IDUs to effectively improve their mental health outcomes.

Keywords: *Enacted human immunodeficiency virus stigma. Mental health. Natural and synthetic illicit drugs. Community attachment. Human immunodeficiency virus-positive injection drug users.*

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Introduction

Pakistan experienced a shocking surge in newly diagnosed human immunodeficiency virus (HIV) cases, with 8,262 reported between January and September 2022.[1] Young people aged 18-30 have a high HIV infection frequency of 19.04%.[2] Males are more vulnerable, with around 210,000 people living with HIV in Pakistan,[3] including 41,000 women and 170,000 men.[4] HIV is more prevalent in people who inject drugs (PWIDs) (7.5%), transgender sex workers (7.5%), transgender people (7.1%), male sex workers (5.6%), men who have sex with men (MSM) (5.4%), and female sex workers (2.2%) in Pakistan.[4] Although < 1% of the general population is estimated to be HIV positive, the epidemic is concentrated among high-risk groups like injection drug users (IDUs) and sex workers.[5]

The majority of HIV/acquired immunodeficiency syndrome (AIDS) cases in Pakistan are reported in Punjab (75,000), followed by Khyber Pakhtunkhwa (16,322), Sindh (6,000), Balochistan (5,275), and the combined region of Azad Jammu and Kashmir and Gilgit-Baltistan (2,500).[4] Punjab province in Pakistan has a higher HIV prevalence due to factors such as increased population density and urbanization, which facilitate the virus's spread. Cultural and societal traditions contribute to stigma and hinder open discussions about HIV, further complicating the management of the issue.[5] In addition, restricted access to healthcare and preventative services in rural areas exacerbates the risk, limiting the availability of resources like condoms, clean syringes, and HIV testing.[6]

The prevalence of HIV among MSM in Pakistan has notably increased, making them a key group in the country's concentrated HIV epidemic, representing about 22% of the HIV population.[7] There is a lack of reliable data on sexually transmitted infections (STIs) due to an absent surveillance system,[8] leading to many cases remaining undiagnosed and untreated.[9] A study from 2006 to 2009 indicated significant STI prevalence among participants, with high rates of syphilis (29.5%) and gonorrhea (13%).[10] In addition, the issue of chemsex – engaging in sexual activities under the influence of drugs – has risen, linked to unsafe practices and increasing HIV transmission rates.[11] Factors motivating participation in chemsex include enhanced sexual pleasure, exploration of fantasies, and social aspects, with peer pressure also playing a significant role.[12]

Polygamy in Pakistan is legally accepted but not widespread, being particularly common in specific rural areas and among certain communities. Estimates of its prevalence vary; some surveys suggest about 4% of men, while a 2017-2018 study reported 51.8% in certain samples.[13] Educational background influences its occurrence, as it is more frequent among less educated individuals. Cultural practices often overlook legal requirements, such as obtaining the first wife's consent. In addition, polygamous relationships can increase the risk of HIV transmission, especially if one partner engages in high-risk behaviors. This is concerning because women may struggle to negotiate safe practices, heightening their vulnerability. HIV is spreading from high-risk populations into the general populace, making polygamous families significant in this context.[14]

The attitude toward drug use in Pakistan is warmhearted, surmounting the prevalence of substance abuse and substance dependence in the Pakistani population from 6.7 million to 4.25 million, respectively, indicating a dire need for residential treatment.[15] The main contributor to the spread of AIDS in the country is the use of contaminated needles.[16] Drug overdose and mortality rates are escalating severe issues in Pakistan, with reports indicating hundreds of daily fatalities linked to drug-related complications. The country's strategic position on trafficking routes increases substance accessibility.[17]

People living with HIV face stigma not only due to their HIV positive serostatus but also due to behaviors that may have led to their infection, such as injecting drug use.[18] Studies have documented that some methods, particularly injection, are more stigmatized than others, such as inhaling or sniffing.[19] The stigma also varies by drug type, with substances like tobacco facing fewer stigmas compared to alcohol and cocaine.[20] Cultural factors, especially within the Muslim population in Pakistan, further influence stigma levels, as drug use contradicts social norms. Research highlights a significant difference in stigma across varying categories of drug users, correlating with the severity and progression of their substance use behaviors.[21] Women who inject drugs experience heightened stigma compared to men due to gender norms and the intersection of gender and drug use identities.[22] This stigma adversely affects women's health and access to care, leading to their under-representation in healthcare and harm reduction contexts.[23] Many women conceal their injection habits from healthcare providers or avoid attending services altogether, often delaying care.[24] In addition, increased rates of physical and sexual violence faced by women further discourage them from utilizing harm reduction services.[25]

Pakistan, a predominantly Muslim society, condemns and forbids the use of illicit substances in the light of Islamic teachings due to their adverse effects on individual health.[21] The general public attitude toward IDUs encompasses stigmatization, rejection, discrimination, and even declaring them black sheep within familial, cultural, and social structures.[26] IDUs are considered a highly stigmatized group due to negative, longstanding societal views related to injecting illicit drugs.[27] The stigmatized status of injection drug use and HIV prevents IDUs from seeking HIV testing.[28] HIV risk groups such as sex workers, MSM, individuals engaging in chemsex, and transgender individuals, are demographically deviant from heteronormative and cis-normative standards, experiencing significant stigmatization due to both their demographic differences and their HIV seropositive status.[29] In addition, IDUs, another high-risk group, face deep-seated stigma due to associations with various challenges, including HIV/AIDS, hepatitis C, mental illness, unsafe behaviors, and societal issues like poverty and criminality.[30] This group is often perceived through a moral and criminal lens rather than as a health concern, leading to a belief that they possess personal control over their circumstances, resulting in increased blame and responsibility for their health status.[31]

Besides an upsurge in the number of IDUs, the drug culture has been transformed from natural illicit drugs to synthetic illicit drugs in Pakistan, which is more perilous.[32] Methamphetamine is perilous due to its easy accessibility, lower cost, and its manufacturing in kitchens using household items such as paint thinner, Freon, and drain cleaner, along with lithium strips, which are available in batteries.[32] Ephedrine and pseudoephedrine, which are easily available from pharmacy stores, are added to make methamphetamine more potent.[32] Heroin, cocaine, and methamphetamine are the most commonly injecting illicit drugs in Pakistan.[33] Heroin, derived from opium poppy plants, is the most commonly injecting drug and can come in various forms.[34] Cocaine, obtained from the Erythroxylon coca plant, is a stimulant used for chewing leaves or brewing teas.[35] Methamphetamine, a highly addictive synthetic drug, can cause long-term damage to the brain with repeated use.[36] Methamphetamine and cocaine abuse are more prevalent in populous cities, while opium is widely abused in rural areas of Pakistan.[37] Both natural illicit drugs, such as heroin and cocaine, and synthetic illicit drugs, such as amphetamine, are positively related to poor mental health.[38]

Enacted HIV stigma refers to "discrimination experienced by people living with HIV from others."[39] It has been associated with adverse mental health outcomes.[40] Previous studies documented a positive link between enacted HIV-related stigma and symptomology of depression and anxiety in HIV/AIDS patients.[41] Studies conducted in Central Georgia determined a link between enacted HIV stigma and depression.[42] Similarly, the association between enacted HIV stigma and poor mental health is reported in a study conducted in the cities of Birmingham (Alabama) and Chicago (Illinois).[43]

The presence of drug use networks in the life of IDUs forms a prominent part of their identity, and is linked with the sharing of injecting equipment, more frequent use of drugs, and difficulty in the management of drug use.[44] The societal condemnation, rejection, and stigmatization by family and friends of IDUs indicate their social networking comprised of IDUs too.[45] Studies indicate that attachment to a community having similar experiences of discrimination and marginalization buffers the detrimental effects of social stigma.[46] While having some identified protective benefits, being part of a social network of IDUs can increase the frequency and variety of drugs consumed and increase possible harms associated with injection drug use.[46]

However, the literature is still silent on investigating the relationship between enacted HIV stigma, community attachment, and mental health. Therefore, this research study is driven by three basic aims (a) to investigate the relationship between enacted HIV stigma, community attachment and mental health (b) to investigate whether community attachment mediates the association between enacted HIV stigma and mental health (c) to examine the moderating role of illicit drugs type (natural and synthetic illicit drugs) since some illicit drugs are more stigmatized than others.[47]

Methods

Research design and participants

A cross-sectional research design was employed to recruit purposively 200 male, HIV positive IDUs from the HIV Clinic at Mayo Hospital in Lahore, Pakistan. The majority of drug users living with HIV/AIDS in Pakistan comprised of male population.[15] While the female population who are living with HIV/AIDS may be regular non-commercial female partners, intimate partners of injected drug users living with HIV/AIDS or having any other cause of HIV infection.[4] Since the

primary inclusion criteria of the current study include injected drug users living with HIV/AIDS; therefore, females who were on follow-up treatment having cause of HIV infection other than injecting illicit drugs were not recruited. HIV-positive IDUs who were on follow-up treatment, injecting heroin, cocaine, and methamphetamine were only included in this study. IDUs that were visiting the HIV clinic for screening purposes, had physical disabilities, or other HIV comorbidities, injecting antihistamines and poly drugs, or were unable to respond were excluded from the study.

Assessment measures

Enacted HIV stigma scale

The enacted HIV stigma scale[48] is a subscale of the shorter version of the HIV stigma scale and consists of three items. Higher scores on this scale indicate a greater experience of enacted HIV-related stigma. The reliability index of the enacted HIV stigma scale in this study was 0.78.

Mental health inventory (MHI)

The MHI-18[49] is an 18-item self-report measure designed to evaluate mental health. Scores on the MHI-18 range from 0 to 100, with higher scores indicating better mental health. For this study, the reliability index of the MHI-18 was determined to be 0.92.

Community attachment

A four-item scale having a 5-point Likert response format was adapted from existing HIV community attachment measuring tools.[46] These four items assessed perceived attachment with the community of IDUs, the number of friends who inject drugs, and amount of free time spent with IDUs, amount of time spent on helping other IDUs. The possible score of this four-item scale ranges from 4 to 20, where high scores indicate greater community attachment. The reliability index of community attachment in this study was (α = 0.89).

Procedure

This study received ethical approval duly signed from the Board of Advanced Studies and Research (BASR) and Departmental Research Committee of the Psychology department, Lahore Garrison University, Lahore, Pakistan (Notification No: 224-22/13th BASR/Fa-20-MSCP-012) and Punjab AIDS Control Program (PACP/Admin/28701). Since PACP and Nayi Zindagi Trust provide antiretroviral therapies in Pakistan to HIV positive IDUs, the researcher approached PACP to recruit participants. PACP offers free antiretroviral therapy (ART) and diagnostics, including PCR and CD4 tests, to HIV-positive patients in the region.[5] The national and provincial AIDS control programs and some civil society organizations are playing a major role in providing harm-reduction services to PWIDs in Pakistan. The primary focus of such services is to prevent transmission of HIV, HBV, and HCV through syringe exchange services, and linkages have been developed for referral to public and private health sectors. However, there is no HBV vaccination, HBV and HCV testing, and treatment services for the PWIDs. Work is being done with provincial and district administrations in health, law enforcement, and social sectors for medical care, rights-based services, and an enabling environment for PWIDs.[50]

After signing an informed consent from each participant, a survey booklet was provided with instructions to independently complete it in 20-25 min. HIV positive IDUs who were illiterate or had limited education, verbal questioning was conducted, and their responses were recorded. Participants were encouraged to address any unaddressed items in their survey booklet.

Statistical analysis

All the collected data were statistically analyzed using the Statistical Package for the Social Sciences version 26 and Hayes Macro Process version 4.0. The main statistical tools employed in this study were Pearson product-moment correlation, mediation analysis, and moderation analysis. Pearson product-moment correlation was used to determine the association between enacted HIV stigma, community attachment, and mental health. Similarly, mediation analysis was utilized to investigate the mediating role of community attachment between enacted HIV stigma and mental health. Moderation analysis was conducted to examine the moderating role of injection drugs type between enacted HIV stigma and mental health in HIV-positive IDUs.

Results

Table 1 shows the Pearson correlation between enacted HIV stigma, community attachment, and mental health. The results suggest that higher levels of enacted HIV stigma are associated with stronger

Table 1. Pearson correlation between Ena-HIV S, community attachment, and mental health in HIV positive injection drug users (n = 200)

Variables	M	SD	1	2	3
Ena-HIV S	9.68	2.66	0.17*	-	-
CA	15.36	4.81	0.09	0.32‡	-
MH	30.07	21.74	−0.16*	−0.18†	−0.38‡

*p < 0.05.
†p < 0.01.
‡p < 0.001.
M: mean; SD: standard deviation; Ena-HIV S: enacted human immunodeficiency virus stigma; CA: community attachment, MH: mental health.

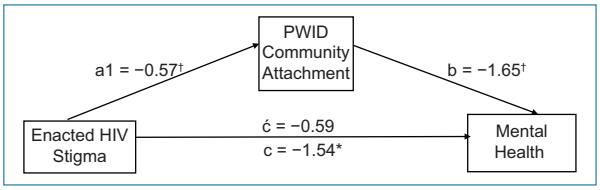

Figure 1. Mediation model of enacted human immunodeficiency virus stigma, people who inject drugs community attachment, and mental health. *p < 0.01, †p < 0.001.

attachment to the IDU community. At the same time, both enacted stigma and community attachment are linked to poorer mental health among HIV-positive IDUs. In simple terms, individuals who face more stigma and are more closely connected to IDU communities tend to report worse mental health outcomes.

Table 2 shows that enacted HIV stigma has a significant effect on community attachment (p < 0.001), and community attachment, in turn, has a significant effect on mental health (p < 0.001). When community attachment is considered, the direct relationship between enacted HIV stigma and mental health becomes non-significant (p > 0.05), suggesting that community attachment fully mediates this link. In simpler terms, enacted HIV stigma does not directly lead to poorer mental health. Instead, it first increases individuals' attachment to the IDU community, and this stronger attachment is what is associated with poorer mental health outcomes. Overall, this suggests that the impact of enacted HIV stigma on mental health operates indirectly through community attachment, rather than as a straightforward linear relationship (Fig. 1).

The indirect effects were further tested using 5,000 bootstrapped samples with a 95% confidence interval. The results show that the overall indirect effect of enacted HIV stigma on mental health, through community attachment, is statistically significant (Table 3).

Table 4 shows that drug type significantly moderates the relationship between enacted HIV stigma and poor mental health. In other words, the strength of this relationship varies depending on the type of injecting drug used (Fig. 2).

Conditional effects

The conditional effects of the type of injecting illicit drugs were examined on two levels: (I) Natural illicit drugs and (II) Synthetic illicit drugs. The relationship between enacted HIV stigma and poor mental health becomes insignificant in natural illicit drug injectors. Therefore, it is concluded that enacted HIV stigma is associated with a reduced risk of poor mental health among individuals who inject natural illicit drugs (Table 5).

Furthermore, the relationship between enacted HIV stigma and mental health is statistically significant in synthetic illicit drug injectors. Conditional effects of synthetic illicit drug indicated that enacted HIV stigma is associated with an increased risk of poor mental health among individuals who inject synthetic illicit drugs (Table 6).

Discussion

Drug use, particularly injection, is linked to severe HIV epidemics globally. HIV-infected drug users exhibit higher rates of medical, psychiatric, and substance-use disorders, leading to increased morbidity and mortality compared to non-drug-using HIV-infected individuals. The variety of comorbid conditions complicates diagnosis and treatment, creating challenges in providing comprehensive care. Moreover, those HIV-infected drug users who receive ART experience poorer clinical outcomes than their non-drug-using counterparts.[51] HIV stigmatization in Pakistan dehumanize HIV positive IDUs, triggering them to attach themselves with other IDUs, discriminated them in healthcare settings, which puts them at an increased risk for poor mental health. Therefore, the purpose of this study encompasses the investigation of the relationship between enacted HIV stigma, community attachment, and the mental health of injecting drug users in Pakistan. Results revealed that enacted HIV stigma is significantly positively linked to community attachment, supporting the existing literature.[46] Since the connection of stigmatized people with their stigmatized community helps them in building social capital and creation of positive social networks. Literature documenting belongingness to aboriginal and racial groups theorized that feelings of connection

Table 2. Results of mediation analysis (with Process version 4)

Antecedent	Consequent							
	CA (M)				Mental health (Y)			
	Model pathways	β	SE	p-value	Model pathways	β	SE	p-value
Enacted HIV stigma (X)	a	0.57	0.12	0.001*	c′	–0.59	0.56	0.29
CA (M)					b	–1.65	0.31	0.01†
Constant	i	17.29	3.93	0.001*	i	19.93	3.76	0.001*
	R^2 = 0.10				R^2 = 0.15			
	F (1.198) = 22.54		p = 0.001*		F (2.197) = 18.23		p = 0.001*	

*p < 0.001.
†p < 0.01.
LL: Lower limit; UL: upper limit; CA: community attachment; SE: standard error.

Table 3. Indirect effects of enacted HIV stigma through community attachment on mental health in HIV positive injection drug users (n = 200)

Variables	β	SE	LL	UL
CA	–0.11	0.03	–0.20	–0.05

CA: community attachment; SE: standard error; LL: lower limit; UL: upper limit.

Table 4. Regression analysis examining the interaction effects of enacted HIV stigma on drug type and mental health in HIV positive injection drug users (n = 200)

Variables	Mental health		
	β	SE	95% CI
Constant	30.37†	1.49	(27.4, 33.3)
Enacted HIV stigma	–1.61*	0.56	(2.72, –0.49)
Drug type	–1.03	1.77	(–4.54, 2.47)
Enacted HIV stigma × Drug type	–1.84*	0.69	(–3.21, –0.47)
R^2	0.073	-	-
F	5.16	-	-

*p < 0.01.
†p < 0.001.
SE: standard error; CI: confidence interval.

Table 5. Conditional effects when HIV positive individuals inject natural illicit drugs

Variables	1	2
Enacted HIV stigma	-	–0.69
Mental health	-	-

Table 6. Conditional effects when HIV positive individuals inject synthetic illicit drugs

Variables	1	2
Enacted HIV stigma	-	–4.61*
Mental health	-	-

*p < 0.001.

with similar stigmatized communities are a source of compensation for the drastic effects of stigma by creating a positive frame of reference for stigmatized individuals.[46] Since the collectivist-oriented cultural values of Pakistan and religious attributions to the use of drugs and HIV/AIDS triggers HIV positive IDUs to social exclusion. The general prejudiced behavior of the community toward HIV/AIDS patients due to the illness stigmatized status, and its association with immoral behaviors made IDUs to attach with the community align with their identities.

Findings indicated that enacted HIV stigma was significantly negatively associated with mental health, congruent with previous studies.[40,41,47] Enacted HIV stigma contributes to chronic stress, shame internalization, and social exclusion. HIV positive IDUs are labeled as dangerous, irresponsible, and immoral, which results in a lack of social support, poor access to healthcare services, discrimination, and dehumanized treatment, such as blaming and rejection due to HIV-related stigma. Such stigmatization causes HIV patients to internalize a negative view of themselves, amplification

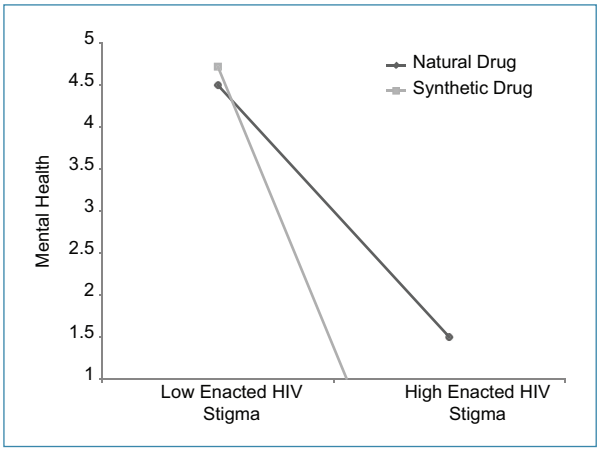

Figure 2. Interaction plot of enacted HIV stigma, types of drugs, and mental health.

of worthlessness, and self-stigmatization. Trapped in a cycle of isolation and judgment, HIV patients are more prone to have poor mental health due to the psychological burden of coping with stigmatization.[40,41,47]

Findings indicate a significantly negative relationship between community attachment and mental health in HIV positive IDUs. This could be explained by the fact that, besides creating a positive frame of reference and developing a sense of belongingness, injecting drug community attachment facilitates an individual's more frequent use of drugs, sharing of injecting equipment, and increased risk behaviors.[46] Therefore, it is speculated that the benefits of community attachment, such as providing acceptance and social approval in the same community does not provide the social support to improve their mental health. But according to the researcher observation of the current study, IDU's community attachment is a "*Risk network*" which seems a positive indicator of good mental health at the surface level but deteriorates the psychosocial health of injecting drug users as long as they are attached to the community of drug injectors due to their exposure to more lethal illicit drugs, and non-sterilized injecting equipment.

Moderation analysis indicated that synthetic illicit drug injectors have significantly poorer mental health as compared to natural illicit drug injectors due to enacted HIV stigma. This disparity may be attributed to the non-existence of effective pharmacotherapy for amphetamine use disorder,[52,53] neurotoxic effects of long-term methamphetamine abuse,[36] exhibition of challenging behaviors equated with violence,[54] more disruptive behaviors, and impairments in impulse inhibition.[55] Furthermore, the study reported that 61% of methamphetamine users after the treatment of substance use disorders relapse within 1 year.[56,57]

Mediation analysis revealed that community attachment significantly mediates a relationship between enacted HIV stigma and poor mental health. This could be explained by the fact that discrimination and marginalization of HIV/AIDS patients resulting from HIV stigma cause them to pursue and strengthen social bond with more similar ones. Bonding with other HIV positive IDUs reinforces their shared stigmatized identity, along with offering social support, creating a vivacious cycle of unpleasant experiences and social withdrawal from the general population. Such increased dependency on stigmatized communities aggravates hopelessness, feelings of isolation, and a sense of alienation from mainstream groups, resulting in poor mental health. Therefore, it can be concluded that community attachment links enacted HIV stigma and the mental health by intensifying the adverse psychological impacts of enacted HIV stigma on mental health of illicit IDUs living with HIV/AIDs.

Strengths and limitations

The current study contributes novel insights by being the first to examine the relationship between enacted HIV stigma, community attachment, and mental health in HIV positive IDUs. Furthermore, this study broadens the horizon related to the mediating and moderating effects of community attachment and natural and synthetic drugs on the relationship between enacted HIV stigma and mental health, respectively. Limitations of this study include its narrow focus on broad illicit drug categories (natural and synthetic) without considering variations within these categories or other illicit drugs. The findings may be context-specific and not generalizable to different populations or locations.

Suggestions for future studies and practical implications

Further investigations can explore the underlying mechanisms of different illicit drugs, intervention effectiveness, and harm reduction strategies for diverse drug-using populations. This study sets the foundation for future research to delve deeper into the intricate relationship between enacted HIV stigma, drug use type, and mental health outcomes. Studies in the future may also investigate the burdens of stigmatization against different type of drugs, and also it's precipitating and maintaining factors. Practical implications of this

study include recognizing the differential impact of synthetic and natural drug use on mental health outcomes, which can inform the development of tailored interventions pertinent to specific drug types. It is crucial to prioritize harm reduction strategies, enhance access to mental health services, and address enacted HIV stigma through education and community awareness programs. There is a dire need of interventions discouraging the attachment of injecting drug users to a network having similar identities to avoid their exposure to polydrug use, prevention of HIV and other blood-borne viruses, etc.

Conclusion

The present study suggested that enacted HIV stigma and community attachment significantly cause poor mental health. Furthermore, synthetic illicit drugs users experience more poor mental health as compare to natural illicit drug injectors despite experiencing the same level of enacted HIV stigma. Similarly, HIV patients experiencing enacted HIV stigma have more poor mental health when they are attached to the community of IDUs. There is a need of tailored interventions addressing the impacts of different types of illicit drugs on mental health, differential management of synthetic and natural illicit drug users, and discouragement of attachment of HIV positive individuals to community injecting illicit drugs.

Authors' contributions

K. Muhammad: conceptualization, data curation, investigation, formal analysis, methodology, writing–original draft. F. Yaseen: conceptualization, methodology, supervision, formal analysis, writing–review and editing. H. Akthar: writing–review and editing.

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Conflicts interests

None.

Ethical considerations

Protection of human subjects and animals. The authors declare that no experiments on humans or animals were performed for this research.

Confidentiality, informed consent, and ethical approval. The authors have followed their institution's confidentiality protocols, obtained informed consent from all patients, and secured approval from the Ethics Committee. SAGER guidelines have been followed as applicable to the nature of the study.

Declaration on the use of artificial intelligence. The authors declare that generative artificial intelligence was used to fix language and grammar errors in the writing of this manuscript.

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