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Impact of the Russian invasion on opioid agonist therapy programs in Ukraine: a qualitative study

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Abstract

Background: Opioid Agonist Treatment (OAT) combines opioid agonist medications with counseling and therapy for a whole-patient approach to treating opioid use disorder. The war in Ukraine threatened the continuity of care and well-being of individuals receiving OAT. This study aimed to capture patients' experiences accessing OAT during the war in Ukraine to provide insights that can inform and improve the programs that serve them.

Methods: In October – November 2022, we conducted semi-structured interviews with 17 OAT patients who are peer advocates in the Ukrainian Patient Network VOLNA. All interviews were conducted virtually via Zoom, recorded, and transcribed. Through thematic analysis, we generated codes from the transcripts, iteratively using both inductive and deductive approaches.

Results: The qualitative interviews revealed four themes: 1) 'medication,' focusing on concerns about availability, dosage, and quality of OAT; 2) 'patient barriers,' discussing access challenges for specific patient groups, such as refugees or patients living under the occupation; 3) 'clinic-level challenges,' involving dosing adequacy, treatment continuity, patient volume, and clinician stigma, and 4) 'regulatory inflexibility,' describing uneven implementation of regulations and increased policing to receive OAT during the war.

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Contributors

The authors confirm contribution to the paper as follows: study conception and design: Alex Dubov, Steven Shoptaw; data collection: Oleg Dymaretskyi, Anton Basenko; analysis and interpretation of results: Alex Dubov, Oleg Dymaretskyi, Anton Basenko; draft manuscript preparation: Alex Dubov. All authors reviewed the results and approved the final version of the manuscript.

Declaration of Competing Interest

The authors have no relevant financial or non-financial interests to disclose.

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Conclusion: Our study emphasizes the importance of adapting OAT programs in Ukraine to better serve vulnerable patients affected by the war. The Russian invasion has severely disrupted OAT provision, increasing the risks of opioid withdrawal, overdose, and diversion. By understanding patients' experiences, treatment preferences, and barriers to care, OAT programs can provide continuity of care to those in need.

Keywords

Opioid Agonist Treatment; People who Inject Drugs; war in Ukraine; patient experiences; continuity of care

INTRODUCTION

On February 24, 2022, Russian troops invaded Ukraine. The resulting humanitarian crisis is still ongoing. Through May 8, 2023, the United Nations confirmed 8,719 deaths and 14,815 injuries among Ukrainian civilians, most caused by the indiscriminate use of explosive weapons with a wide impact area (1). Yet the actual numbers of deaths and injuries are undoubtedly much higher. According to Ukrainian government sources (2), as many as 87,000 residents of the occupied city of Mariupol died during the first three months of the war.

The UN Human Rights Monitoring Mission has documented 1,157 attacks on healthcare facilities in Ukraine, resulting in the destruction of 534 hospitals and the death of 161 healthcare workers (3). In response, more than 30,000 medical professionals have joined the Ukrainian Armed Forces, while another 2,500 have emigrated, and 4,500 are internally displaced (4). Consequently, the healthcare access for about 30% of the population in Ukraine is being compromised (5). The ongoing war has severely damaged the Ukrainian healthcare system and its ability to address emergent and existing population health needs, including preventing and treating HIV and substance misuse.

Before the Russian invasion, Ukraine had one of the highest prevalence in the world of people who inject drugs (PWID) and live with HIV (PWH) (6). An estimated 1.7% of the adult population in Ukraine (or 350,000 people) inject drugs, primarily opioids (7). Opioid agonist treatment (OAT), involving extended medication use alongside counseling and support, effectively manages opioid use disorder (OUD) (8), improving physical, behavioral, and psychological health (9), reducing infectious disease (10) and mortality risks (11), and preventing withdrawal while curbing cravings (12). Recent Cochrane reviews (13) and numerous studies (14) offer compelling evidence of the OAT's effectiveness in reducing opioid use and retaining patients in care. In Ukraine, Buprenorphine-based OAT began in 2004, followed by the introduction of Methadone Maintenance Treatment (MMT) in 2008 (15). Initially targeting PWH, access was later broadened to include PIWD.

Before the invasion in 2022, 17,232 (or 5.8% of the PWID estimate) were receiving OAT; less than 50% had access to syringe exchange programs (SEP) (16). The burdens of HIV and HCV among Ukrainian PWID were known to be high before the war. Approximately 18% of Ukrainian PWID live with HIV; over half (58%) live with HCV (17). Scaling up OAT was always central to HIV prevention and treatment efforts in Ukraine. Modeling studies

before the war predicted over 60,000 new HIV cases within ten years among Ukrainian PWIDs if nothing changes (18). Even a 20% increase in OAT coverage during the ten years is estimated to avert 11,000 new HIV cases and 18,000 deaths (19).

Multiple patient (20), clinic (21), and structural level challenges (22) to OAT scale-up in Ukraine are noted in the literature. Existing patient-level barriers include negative perceptions about OAT side effects and the stigma of being a patient receiving OAT (23). Structural levels include compulsory registration of people who inject opioids, waiting lists, inconvenient hours, inflexible medication dispensing guidelines, and mistreatment by clinic staff (24). An obvious challenge exacerbated by the war is an inconsistent supply of medication to clinics/providers, causing increased stress for patients remaining in care and leading to higher risks of harmful behaviors, opioid use relapse, and morbidity/mortality rates (25).

To date, research on the experiences of people who use substances and individuals in OAT during major disasters has been scarce. Existing literature, even recent studies from Ukraine (26), has primarily centered on healthcare professionals and program administrators in OAT. The limited attention given to the unique challenges OAT patients face during wartime is a gap in previous research. This study aims to address this gap by collecting observations and reported experiences of persons on OAT and their advocates. These data represent the views, perspectives, and experiences of OAT patients who serve as regional peer advocates during the ongoing war in Ukraine to identify modifiable structural challenges that prevent PWIDs from accessing OAT.

METHODS

Design

To better understand the effects of war in Ukraine on the ability of PWIDs to access OAT, we analyzed semi-structured interviews with peer advocates - regional patient representatives who provide support and advocacy for this population.

Procedure

We conducted 17 in-depth interviews with peer advocates to understand their experiences with OAT during the war, identify factors affecting their access to treatment, and explore their coping strategies. Additionally, after each interview, we asked the participants for their recommendations to improve OAT programs in Ukraine. The interviews were conducted via Zoom by trained researchers in October and November 2022, lasting approximately 90 minutes each. All interviews were audio-recorded, transcribed verbatim using Trint online transcription services, and translated into English. Participants provided informed consent and received \$30 compensation. Data collection continued until reaching data saturation, a point at which no new information or themes emerged from the interviews. The study was approved by the Loma Linda University IRB.

Participants

Seventeen OAT patients, also serving as regional peer advocates selected by the VOLNA (Ukrainian Patient Network of PWID), participated in individual interviews. These paid volunteers use their lived experience and knowledge to support and advocate for OAT patients, particularly in navigating healthcare systems and improving access to treatment. The study participants were recruited by VOLNA leadership, focusing on selecting peer advocates who either resided or fled from conflict-affected regions.

Analysis

Transcripts were analyzed with ATLAS.ti 23 qualitative coding software. Interviews were coded using a deductive-inductive approach. Deductive codes were derived from the interview guide (see the Supplemental Table of Interview Questions) informed by a recent systematic review of OAT provision during disasters (27), whereby inductive codes were added based on the data itself. Iterative thematic coding techniques, such as continuous comparison and a pragmatic adaptation of grounded theory, were employed to develop relevant coding categories (28). Three coders were used to ensure the reliability of the data, with discrepancies resolved through team discussion and consensus. Respondent feedback was also sought to refine the themes and sub-themes presented in this study, thus enhancing the overall validity of the findings.

RESULTS

In this study, 17 peer advocates participated, including 6 women (35%) and 11 men (65%). The participants' ages ranged from 36 to 62, with an average age of 48 years. Their average time in treatment was 7 years, with a range of 1 to 16 years. Of the 17 participants, 2 had a history of TB diagnosis (11%), 7 were living with HIV (41%), and 14 had a history of HCV diagnosis (82%). More than half of the participants were internally displaced and lived in a dorm or shelter, with a state stipend for refugees as their source of income (see Demographic Table).

Four themes were derived from these qualitative interviews: 1) '*medication*,' concerns about availability, dosage, and quality of OAT; 2) '*patients' experiences*,' centering on various groups of OAT patients and their experiences during the war; 3) '*clinic-level challenges*,' focusing on programmatic challenges for OAT clinics, and 4) '*regulatory inflexibility*,' describing the uneven implementation of regulations to receive OAT and increased policing during the war.

1. Medication

Patient advocates expressed concerns about a nationwide OAT shortage due to the shelling of the two domestic manufacturers. Interviewees reported that there was an increased demand for treatment, and the existing complex infrastructure for dispensing OAT placed further strain on the supply, leading to uncertainty among patients about its availability. Private clinic closures early in the war caused panic, and even after reopening, access to OAT remained uncertain as governmental clinics were given priority in supply distribution (see Table 1 for illustrative quotes).

a. Quality of Ukrainian-made OAT—There is a prevailing concern among patients regarding the quality of Ukrainian-made OAT. Respondents shared stories of patients managing withdrawal symptoms while taking OAT, having to extend the efficacy of OAT by taking it twice daily, and noting the difference in potency between imported and Ukrainian medication. Participants referenced an independent study of medication components conducted by the patient network that showed a 25% reduction in efficacy for Ukrainian-made methadone (29). Yet, patients' concerns about medication quality, which predated the war, were often attributed to drug interactions, increased stress during the war, or a tendency to equate imported products with higher quality.

b. Uncertainty and fears about the national supply of OAT—Efforts are underway to replenish national stocks of OAT medication, especially given the threat of shelling to Ukrainian OAT manufacturers. The Ukrainian Public Health Center (UPHC) is a government agency overseeing public health and healthcare initiatives in Ukraine, which includes the regulation and oversight of OAT. While the UPHC conducts negotiations with international partners regarding the procurement of OAT, patients were worried about potential interruptions in treatment caused by the nationwide shortage of OAT. Fears of OAT shortage were exacerbated by private clinics having to preserve the medication stock, as they failed to receive assurances of continuous supply from authorities, who prioritized governmental clinics. Participants discussed how private clinics attempted to extend their supplies in the face of uncertainty regarding nationwide medication stocks. This included measures like operating at reduced capacity and decreasing patient dosages.

c. Dosage reduction—The fears regarding potential nationwide shortages of OAT and the constant influx of new patients resulted in reductions in methadone dosage for both new and established patients. Patients questioned these clinical decisions and their underlying logic. Respondents were also concerned about patients with suddenly tapered doses who may lack the ability and resources to cope with the uncertainty and onset of the withdrawal symptoms. Patients reacted to tapering in various ways, from stockpiling medications at home to an extreme case of forcefully taking over a private clinic in a currently occupied territory where they seized the medication.

d. Ways patients cope with lack of OAT—Participants described the experiences of many OAT patients who have to manage their withdrawal symptoms while hiding from air raids and coping with the stresses of war. Some take pregabalin or other pain medication to reduce the severity of symptoms. Patient advocates were concerned about increased alcohol use among patients trying to supplement gaps in OAT treatment. Several respondents described their worries about reduced drug tolerance among patients and resulting overdoses. They referred to data suggesting that an OAT patient with reduced tolerance is 129 times more likely than an average person to die from an accidental overdose (30).

e. Street alternatives—Participants recognized that individuals who have experienced trauma and faced economic hardship, such as internally displaced persons, are more susceptible to substance use as a coping mechanism, thus driving the demand for street

drugs. Despite the increased demand, the Ukrainian black market of substances has suffered during the war, resulting in limited and low-quality supplies. Patient advocates discussed the risks of street alternatives, fearing their patients may return to using. They pointed out the increase in injecting stimulants and new psychoactive substances (NPS) called ‘salts’ and ‘spices.’ There is a growing market for synthetic stimulants such as mephedrone, MPVP, and other NPS cathinones. While fentanyl is not prevalent, it is often mixed with street methadone, sought after by out-of-care OAT patients. Respondents mentioned reports of deaths from overdoses connected to traces of fentanyl in street methadone.

f. Recommendations—Participants recommended transparency about OAT supply chains and communication about restrictions on OAT distribution to reassure patients about the medication’s availability during the ongoing war. Respondents underscored the need to ensure the quality of domestically produced OAT to alleviate concerns and improve treatment acceptance. To this end, they suggested offering patients the option to either purchase imported OAT or obtain domestically produced medication free of charge. As clinicians faced the challenge of prioritizing different groups of patients based on OAT availability, patient advocates called for a uniform approach to enrolling new and displaced patients. The admission criteria to OAT programs must be flexible for new patients seeking treatment and equally open to patients transferring from state or private clinics. Lastly, participants recommended developing clinical guidelines outlining the decision-making process for dosage reduction, providing patients with either emergency take-home or daily dosing, and distinguishing between high and low-risk patients when dispensing additional medication.

2. Patient experiences

In this theme, patient advocates shared experiences reported by OAT patients (see Table 2 for illustrative quotes). Respondents talked about hundreds of patients left behind in occupied territories and thousands of displaced patients struggling with treatment access. Displaced patients are often considered new to the program, having to restart at significantly lower doses with daily supervision. Women who use drugs experience discrimination from state and medical organizations. HIV-positive patients may prioritize their OAT medication over taking ART.

a. Patients living in occupied territories—Patient advocates described humanitarian disasters in regions occupied by Russian invaders. They talked about hundreds of remaining OAT patients abducted and tortured in makeshift prisons. Dozens had fatally overdosed, killed themselves, or died from unmanaged withdrawal symptoms. According to one interviewee, approximately 500 OAT patients in Mariupol found themselves trapped in the occupied city. The respondent knew at least 40 patients who tragically lost their lives after the OAT program closed with the arrival of the occupiers. The patient advocate shared how Russian forces seized remaining methadone and used it to manipulate desperate OAT patients, forcing them to dig trenches or graves. While some OAT patients managed to flee, many remained. The respondent described fears of not passing the filtration process at checkpoints that residents must go through before exiting an occupied zone, preventing those who remained from leaving. Russian “filtration” is a tactic used to remove and

eliminate residents considered disloyal in newly occupied territories, often resulting in their execution, detention in filtration camps, or forced relocation to Russia. During the filtration, occupants routinely check for tattoos and criminal history, both common among OAT patients.

b. Displaced patients—Intersecting societal stigmas was a shared experience among displaced persons on OAT. Patient representatives explained how the stigma of substance use intersects with and is compounded by marginalization linked to gender and age, HIV status, and criminal history. For instance, as most displaced OAT patients are men of fighting age, they experience shame for not being on the frontlines. As these men seek shelter, background checks are performed, often revealing criminal histories. It is common for people in Ukraine to associate criminal histories with substance use. Substance use, in turn, is often linked to the potential for HIV infection. Yet stigma is not the only barrier to accessing services among displaced persons on OAT. Participants shared stories of their patients who lost documents while escaping conflict zones and could not access treatment at any clinic. Restoring documents in wartime takes weeks, while patients must find shelter and manage their withdrawal symptoms. Finally, participants described challenges faced by patients trying to get re-established in other regions. Some clinics may not be able to accept new patients, or they may treat displaced patients as new unknown patients and induce them using low dosages and put them through a battery of tests.

c. Refugee patients—As millions of Ukrainians crossed the border to the EU, participants estimated that at least several thousand among them were OAT patients. Patient advocates described various barriers refugees might face while accessing OAT in the EU, including limited supplies and quotas in receiving countries, difficulties in determining OAT equivalencies, and stigma resulting in a reluctance to disclose drug use and seek help. Participants shared stories of refugees in camps who feared that their disclosure of opioid use would result in losing accommodations. In turn, medical staff mistook their withdrawal symptoms for GI issues. There were stories of refugees hiding their OAT history in fear of deportation and being housed hours away from the nearest OAT center.

d. Patients with HIV—In 2020, injecting drug use accounted for 38% of new HIV diagnoses in Ukraine (31). HIV prevalence among Ukrainian PWID is 18% (17). The latest available data before the invasion shows that only 58% of PWID living with HIV were aware of their status, of whom 70% were on ART, and of whom 74% were virally suppressed (16). Patient advocates voiced concerns about the potential impact of relocation and change in social networks on HIV and OAT treatment persistence. Participants also highlighted a prevailing belief among OAT patients on ART that drug interaction reduces OAT efficacy. As OAT dosage was reduced for many patients, patient advocates feared it might impact ART adherence. They shared stories of patients who prioritized methadone over ART to avoid withdrawal and OAT clinicians requiring observed therapy for both medications to prevent lapses in ART treatment among their patients.

e. Women—Respondents feared increased policing during the war might significantly impact women with children and their ability to continue OAT treatment. Ukrainian law

enforcement often fails to differentiate between parental OAT treatment and uncontrolled substance use, assuming both harm children. Participants shared stories when the parental rights of mothers in treatment were challenged in court. Similar stories discourage women from entering or staying in treatment during the war.

f. Recommendations—Study participants offered several suggestions that could improve the patient experience. One key area of concern is the accessibility of mental health care to address the increase in depression, anxiety, and PTSD among patients. Patient advocates recommended ensuring that mental health care is readily accessible to patients, including telehealth support. Another key issue is the growing rates of alcohol use among patients. Advocates suggested that programs offer participation in support groups and access to medications such as naltrexone to address this issue. Additionally, OAT programs should support patients in the treatment of comorbidities, which can be difficult to access during the war due to increased stigma and scarcity of healthcare services. To ensure accurate dosing and avoid unnecessary induction, patient advocates recommended using personal dosage information cards, an approach successfully tried in other countries (32). Furthermore, patient advocates urged the development of tailored programs for OAT patients to address barriers to safe and equal access to social and supportive services. Finally, patient advocates suggest that OAT programs streamline the induction process and reduce the burdens of program enrollment. This can be done by simplifying paperwork and testing requirements and ensuring that patients have access to transportation to attend appointments.

3. Clinic-level challenges

In this theme, respondents discussed programmatic challenges faced by OAT clinics during the war, including insufficient dosing leading to withdrawal symptoms. Clinics had to balance ensuring treatment continuity for regular and displaced patients, determining dosage for clients from different clinics, and enrolling new patients who could not access street supplies. As a result, many arriving patients were treated as new, started at induction doses, and required to attend the clinic daily. Long queues can be dangerous during air raids as much as the time spent traveling to the clinic in the absence of delivery options. Stigma and negative attitudes of providers were identified as additional barriers. See Table 3 for illustrative quotes.

a. Established patients treated as new—Relocating patients were frequently downgraded upon arrival to a more controlled regimen involving daily pick-up of OAT and periodic drug testing despite their flawless history at the clinic of origin. This was especially common for OAT patients moving from an area with predominantly private clinics (e.g., Kharkiv) to an area with primarily government-funded clinics (e.g., Odesa). Such a transition would mean starting at low induction doses, suffering withdrawal symptoms and loss of autonomy, enduring prolonged commutes to the clinic, and interacting with new providers often suspicious of their treatment history.

b. Increase in new patients—Demand for OAT treatment by internally displaced patients considerably challenged receiving sites. Respondents described clinics' hallways busy with sweat-slicked patients waiting to dose for the first time in days. Some were

transfers from private clinics to state-funded sites. Others were arriving from various regions where OAT access was impacted by war. Yet others were new patients who were not in treatment before the war but decided to start OAT upon relocation. Among these new patients, some could no longer procure or afford street opioids, while others were using OAT treatment as an opportunity to avoid army service. Clinics struggled to cope with this rapid influx of new and transferring patients.

c. Lack of transportation and live queues—Patients with disabilities, comorbidities, or special needs struggled to get to and from OAT clinics. Patient advocates shared stories of newly arriving paraplegic patients who suffered from war explosions. Their apartments and public transport are not equipped for wheelchairs, making daily trips to the clinic impossible. War has worsened the health of many patients on OAT. Yet, they are still required to come to the clinic daily while burning with fever, managing COVID-19 or TB symptoms, or suffering from acute HCV. Clinics are often found on the outskirts of cities, requiring some patients to travel two hours one way. They still have to wait hours for their turn in live queues in a clinic. Air raids frequently interrupt clinic hours, with live queues of patients moving outdoors during the alarm.

d. Clinician stigma—War has amplified negative attitudes against people who use substances. Participants described the successes of pre-war anti-stigma campaigns, followed by significant setbacks in the recent year. During the war, substance use stigma was weaponized by Russian propaganda that labeled the elected leadership of Ukraine as drug addicts. Stigma was further compounded by the assumption that OAT is not a priority in wartime. Patients on OAT described a shared sense of de-prioritization, often reinforced by explicit statements from the providers. Participants shared clinicians' statements describing their patients on OAT as subhuman, not deserving of assistance, and immoral. Patients on OAT are often treated with suspicion, disrespect, and indifference to their basic needs. They are afraid to speak up against mistreatment, assuming it will result in their administrative discharge from the program.

e. Closed sites and evacuated clinicians—Patient advocates described private clinics closing their doors during the first months of the war. In many instances, it happened overnight, with clinicians evacuating and leaving their patients without OAT supplies or dosing documentation. This was one of the reasons for treating displaced patients as new at receiving state-funded clinics. For instance, there were over 2,500 private patients on OAT in Kharkiv, the second-largest city in Ukraine, five times more than those treated in the state-run program. As the city was constantly shelled, with the heaviest attacks during the first months of the war, many private clinics temporarily closed, creating panic among their patients who rushed to the governmental clinic. Many clinics close to conflict zones were able to provide their patients with a 30-day supply of medication before evacuating.

f. Recommendations—Patient advocates recommended a centralized national database of all OAT patients from state-funded and private clinics to ensure accurate tracking of patient progress. Currently, the database only includes patients in state programs. Advocates also suggested developing and maintaining a priority list of particularly vulnerable patients,

such as disabled or medically compromised individuals, to provide tailored services. To increase OAT access, advocates suggested expanding the availability of clinics or even using mobile clinics in regions outside of large cities. It is also crucial that each program has a trained counselor or social worker to provide patients with support and resources. To address the disruption of HIV testing during the war, patient advocates suggested that clinics increase the accessibility of testing. Clinics must also provide basic necessities such as restrooms and safety planning for air raids. Finally, advocates suggested streamlining the process of receiving medication to avoid long queues, which can be incredibly challenging for patients who have to travel long distances.

4. Regulatory inflexibility

In the early days of the war, the Ukrainian Ministry of Health introduced several provisions allowing more flexibility in OAT distribution and program administrations, most notably allowing for a 30-day take-home supply of OAT. Participants described regional differences in how programs managed OAT supply (e.g., waitlisting patients), which patients were prioritized (e.g., new or internally displaced), and how local governments enforced restrictive policies. These policies included restrictions on driving, certain types of employment, and access to supportive services. Table 4 presents illustrative quotes for this theme.

a. Increased policing—Although police harassment practices against OAT patients were widespread before the war, participants reported a significant increase in police harassment practices against OAT patients during the war, often resulting in temporary detention. Reasons for this increase included heightened security during the war, block posts and patrols by local army units (Teroborona), and failure of law enforcement to distinguish between people who use drugs and those in OAT treatment. Calls for national unity during the war may have exacerbated the stigma and policing of outcasts, like people who use drugs, unworthy of this togetherness. Stop and search practices, police disruption of harm reduction programs, and the ability to detain OAT patients for 72 hours without a charge were also reported.

b. Limited access to supportive services—Increased policing and harassment, though felt unequally between regions, may have resulted in limited access to shelter and supportive services for displaced patients on OAT. In many areas, police organized periodic raids of refugee shelters (e.g., public gyms or schools) to check the documents of displaced people. These raids were often conducted in public, with police checking criminal records in addition to personal documents. If police suspect a history of substance use, which may be signaled by withdrawal symptoms or a prior criminal record, they may escort the individual to a dedicated clinic for mandatory confirmatory testing. OAT patients lost their accommodations after these raids and were forced to seek alternatives. Patient advocates supported patients in their search for accommodation. Yet, at times, even their efforts backfired. For instance, several families were left stranded when a local mayor discovered that among those whom he promised accommodations were displaced families of OAT patients.

c. Inability to drive a car—State-funded OAT programs mandate patient registration in the national database as a ‘drug-dependent person.’ This database helps health authorities distribute OAT medications efficiently, track regional demand, and make informed procurement decisions for a reliable supply. However, some patients have lost their driving privileges due to the inability of law enforcement to distinguish between people who use substances and those in OAT treatment. Although some programs are more successful in advocating for their patients, the provision limiting driving privileges is not equally implemented. Patients may pay bribes or defend their driving rights in court when stopped by the police. Many patients attended private clinics where national registration was not required before the war. Still, as these clinics closed, established but unregistered patients had to decide whether to risk their driving licenses by registering at a state clinic. For displaced patients, driving is often essential for their livelihoods, and the fear of losing driving privileges is a significant barrier to staying in treatment.

d. Lack of OAT sites in smaller towns—Patient advocates shared that transportation and access to treatment sites are major issues that current legislation does not adequately address. Patients must often travel for hours daily to reach the nearest OAT site, which is a significant burden. Respondents desire more locations in smaller regional centers, but opening clinics in these areas is challenging due to restrictive policies. These policies require OAT sites to comply with safety regulations and providers to obtain licenses to work with PWIDs. Legislations governing medication procurement have a substantial impact on the availability of slots in OAT programs, limiting their ability to accept new patients. According to participants, waitlists for treatment are common among smaller programs in regional centers.

e. Lack of coordination between private and state OAT programs—Patient advocates highlighted the need for coordination between state and private OAT clinics in Ukraine, given that state-funded clinics require registration in the national database mentioned above. In contrast, private clinics offer personalized care at a cost without registration. However, the war caused many private clinics to close, forcing patients to transfer to state clinics where they were treated as new due to inaccessible records. Advocates proposed the development of a unified patient database to verify prescriptions and dosages across all clinics.

f. Recommendations—Patient advocates suggested that post-war rebuilding and reconstruction plans should include attention to the needs of OAT patients as they are often forgotten and abandoned after disasters. Second, to reduce the policing of OAT patients and clinics, advocates recommended a multi-pronged approach, including education and the use of technology to facilitate communication and record-keeping. Third, clinicians who prescribe OAT should be able to clear patients for driving in a way recognized and respected by law enforcement. Fourth, legal protections should be developed for mothers who receive OAT to prohibit child removal based solely on their patient status. Finally, patient advocates proposed that certain regulatory adjustments implemented during the war to enhance OAT care, such as allowing patients to receive a 30-day medication supply and enabling clinics

to maintain larger medication stocks, should be maintained. They recognized that these changes may have had a positive impact on patient outcomes.

DISCUSSION

This study highlights how OAT programs in Ukraine can adjust to the impact of war and provide continuity of care to vulnerable patients by understanding their experiences, treatment preferences, and barriers to care. The Russian invasion has severely disrupted OAT provision, increasing the risks of opioid withdrawal, overdose, and diversion. Our findings stress the urgent need to adapt OAT delivery to best support Ukrainian PWID. Successful examples of OAT continuity during a war are scarce in the literature. While other studies have explored OAT in the context of disasters (27) or even discussed programmatic aspects of OAT during the war in Ukraine (26), this is the first study to describe the lived experiences of patients receiving OAT during armed conflict. Wars and disasters amplify social vulnerabilities and inequalities, yet the special health needs of PWIDs are rarely considered by emergency responders. PWIDs are especially vulnerable to the effects of war, as they disproportionately experience its negative psychological impacts. They struggle with accessing medical, social, or harm-reduction services due to discrimination, stigma, and loss of medications. Given these vulnerabilities, it is essential to include PWIDs in decision-making processes to better understand how to serve them during the war.

It is important to recognize the resilience of the Ukrainian public health system working under extreme pressure to sustain OAT programs. They coordinated efforts to ensure OAT availability in difficult-to-reach regions while also allowing a 30-day take-home supply of OAT for patients living close to conflict zones (33). Despite these successes, our findings describe the concerns of PWIDs and patient representatives about access to medication and its quality, adjustment of dosages and withdrawal symptoms, rapid influx of displaced patients, and the ability of clinics to respond. Perhaps the greatest concern for PWIDs and patient advocates during the war is the lack of service continuity and the degree of variability in providing these services between regions. Service continuity is essential for reducing physical and psychological distress for PWIDs, their families, and their communities. The war in Ukraine profoundly impacted the social lives, access to services, and risk-taking behaviors of PWIDs. OAT programs need to include risk mitigation strategies and maintain access to treatment to prevent relapses, withdrawals, overdoses, and deaths of PWIDs.

Respondents provided a range of recommendations to enhance OAT programs in Ukraine. They highlighted the importance of transparent communication about OAT supply chains and national medication stock, ensuring quality in domestically produced OAT, and giving patients the choice to purchase imported medication. They also stressed the need to standardize the process for enrolling new and displaced patients and develop clinical guidelines for dosage reduction and risk-based dispensing. Recommendations for improving OAT patient experiences included enhancing mental health care accessibility and addressing alcohol use concerns through support groups and relevant medications. Respondents suggested creating personalized dosage information cards to simplify new patient induction. Clinic-level challenges were addressed with recommendations for establishing a centralized

national database covering OAT patients from both state-funded and private clinics. Respondents proposed establishing a priority list to identify and support vulnerable patients. Expanding the availability of OAT clinics and trained counselors for support was also suggested. Enhancing HIV testing accessibility within OAT clinics and streamlining the medication receipt process while ensuring essential resources were considered critical. Regulatory recommendations underscored the importance of prioritizing OAT patients in post-war rebuilding plans, implementing a comprehensive approach to reduce policing, enhancing legal protections for mothers in OAT, and retaining regulatory adjustments introduced during the war to improve OAT care. These recommendations collectively offer valuable insights for enhancing OAT programs in Ukraine, particularly in the challenging context of the war.

During the war, Ukrainian society, individuals, and organizations have demonstrated remarkable mutual support, aiding the military, helping the wounded, and offering shelter to the displaced. Equally significant is their dedication to providing essential services and ensuring treatment continuity for OAT patients. In the post-war period, it will be crucial to sustain these efforts and provide substantial support to those dealing with trauma and suffering. Ongoing monitoring will remain essential to assess substance use prevalence, while OAT programs will need to remain adaptable to promptly accommodate new patients. Ukraine may face economic challenges and service cutbacks in the post-war period, heightening the risk of increased substance use and HIV transmission. Therefore, prioritizing accessible OAT, harm reduction, and HIV prevention/treatment will be essential in addressing these concerns. To safeguard public health in the post-war era, unified local and international support for OAT programs and harm reduction will be imperative.

Limitations:

Our findings should be interpreted in the context of certain limitations. First, we focused on patients' experiences and did not include the perspectives of OAT program directors. However, given that several emerging studies (26) have already explored program leadership perspectives, we aimed to provide a unique angle to the literature by concentrating on patient experiences, which we believe offers a more comprehensive view of the effects of war on OAT treatment in Ukraine. Second, our study used a convenience sample of peer advocates and relied on the efforts of our partners in Ukraine (VOLNA leadership) to enroll participants. Therefore, our study may not represent the experiences of other OAT patients, such as younger or newly induced patients. Furthermore, some of the data presented in the study is derived secondhand, where peer advocates conveyed information regarding the experiences of other OAT patients under their care.

Conclusion:

Our study highlights the urgent need to improve Ukrainian OAT programs due to the substantial disruption caused by the Russian invasion. This disruption heightens the risks of opioid withdrawal, overdose, and diversion for vulnerable patients. Access to OAT treatment is further complicated by intensified policing, high patient volumes, increased clinician bias, and rigid regulatory constraints. Among specific patient groups, such as the internally displaced, these challenges are even more pronounced. OAT patients are concerned about

medication availability, dosage, and quality. Addressing these challenges requires a focus on treatment continuity, adaptability, and inclusivity while tailoring care to meet the diverse needs of these vulnerable patients. To minimize the war's impact on OAT patients, public health authorities should involve them in designing and implementing program enhancement and post-war relief plans.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

1. Russian invasion disrupts OAT provision, risking withdrawal, overdose, and diversion.
2. Early study describing lived experiences of patients on OAT during armed conflict.
3. Ensuring continuous OAT and support services is crucial during the war.
4. War intensifies PWIDs' vulnerability, causing severe psychological distress.
5. Authorities must involve OAT patients in emergency measures and post-war relief plans.

Table 1 –

Medication

Domain	Quote
Quality of Ukrainian-made OAT	<p><i>"I started OAT on a Canadian medication, and it was glorious. My dose doubled when the Ukrainian-made drugs replaced the imported ones. Still, I struggled. To make my dose last, I had to divide it in half and take it twice daily. It seemed to be a shared experience among our patients. Then the patient network VOLNA conducted an independent study of medication components. It showed that the active substance in Ukrainian drugs was 25% lower than indicated." (VOLNA – Ukrainian peer-based organization representing people who use drugs. Their study of medication components is referenced in the text)</i></p> <p><i>"Some may attribute our issues with the quality of Ukrainian-made drugs to patient perception heightened by the stress of war. Yet the study of active components organized by the patient network was conducted in 2019, not 2022. I saw the results with my own eyes – medication name, lot number, and confirmation of lower quality."</i></p> <p><i>"The police picked up my friend. They confiscated his pills and sent them to the lab. The lab said his methadone pills had 0.16 mg of the active ingredient instead of the 0.25 indicated."</i></p>
Uncertainty and fears about the national supply of OAT	<p><i>"Ukrainian OAT stock relies on the production of two factories. Early in the war, one factory was shelled, and the second factory halted production. Concerned patients started calling the PHC (Center for Public Health). They told us the stock would last until September 2022 while arrangements are underway to import drugs from Europe."</i></p> <p><i>"For months, we've been patiently waiting on the imported medication. The year is almost over, and it is still in transit. Maybe it is being delivered on foot several boxes at a time? Our local programs tell us not to worry, yet they reduce our doses and struggle to cope with new arrivals."</i></p> <p><i>"Patients are concerned about OAT supply issues and making plans to leave Ukraine. Our European colleagues may not be prepared to host Ukrainian OAT patients. Maybe it is easier to help us get medication and avoid this potential mass migration."</i></p>
Dosage reduction	<p><i>"Providers reduced dosage across all regions, yet the logic behind their decisions was unclear. Did they have to roll a dice? Some patients got their doses halved; for some, it was reduced by one-third. As a patient representative, I tried to understand these clinical decisions with no success."</i></p> <p><i>"Since the first days of the war, doses were reduced everywhere for everyone. In many cases, doses were halved overnight. Patients were in shock; they panicked and couldn't sleep, afraid of going into withdrawal. They stockpiled meds and spent all their money buying meds from private OAT clinics."</i></p>
How patients cope with a lack of OAT	<p><i>"To cope with OAT shortages, people may take pregabalin. In large quantities, it may reduce withdrawal symptoms. Yet, not all pharmacies have it. Some patients resort to heavy drinking to alleviate their withdrawal symptoms and risk liver failure. Some inject anything they can find on the street."</i></p> <p><i>"When there is a lack of OAT, patients develop a reduced drug tolerance. It is a dangerous state as it often leads to overdoses. When that patient takes their usual amount, they can easily overdose."</i></p> <p><i>"When all the clinics closed overnight, I had a stash of pills to keep me going. Since the first days of the war, I have had a bad feeling. We all knew what happened in Crimea to OAT patients. So I reduced my dose and put aside a few pills at a time."</i></p>
Street alternatives	<p><i>"This war gave people many reasons to seek relief on the streets - a relief from all the trauma and fear, a way of coping with a lack of OAT supplies. Usually, people would buy street methadone and heroin. Younger folks are all on salts (methcathinone) and spices (synthetic cannabinoids). However, there are shortages even on the black market, bad products, and prices have skyrocketed. It is impossible to find a dealer due to tightened security."</i></p> <p><i>"There are no quality drugs on the black market. Opiates and heroin are almost non-existent. Street methadone is often laced with other substances, like tranquilizers. There were reports of supplies laced with fentanyl. Most people use salts and spices, at times methamphetamine. These substances are more accessible."</i></p>

Table 2 –

Patient experiences

Domain	Quote
Patients living in occupied territories	<p><i>“Before the occupation, Mariupol had about 500 OAT patients. Dozens of patients had disappeared early in the occupation due to unrelenting bombardment, being kidnapped or killed intentionally. I personally know of at least 40 patients who died from unmanaged withdrawal symptoms.”</i></p> <p><i>“Russian occupants had methadone. They gave it to local collaborators to lure in desperate people. Those who’d tried to buy it were detained by occupants and brought to their quarters outside the city. They were beaten repeatedly, thrown in the basement, and then told to dig trenches or graves. Occupants also traded methadone for information.”</i></p> <p><i>“A filtration camp was the only way to escape the city. FSB directs the filtration process. Those with criminal records or tattoos - the majority of OAT patients - would never pass filtration. Not passing filtration means death.”</i></p>
Internally displaced patients	<p><i>“Every day, we deal with stigma. The sentiment is complex, layered, and thus unavoidable. We are a small group of internally displaced OAT patients living in a dorm. We hear things like – you are all men; why are you not fighting? I tried to enlist but was turned down due to my medical history. People can be apprehensive because we are from the East and speak Russian. Some may suspect our history of substance use or our criminal record. Inevitably, some stigma will surface in most interactions with people.”</i></p> <p><i>“Together with my sister, we escaped from Donbas. Her house and documents were bombed and destroyed. Getting reestablished in an OAT program without documents is impossible, while renewing them during the war takes time. So, for the past two months, she has had no access to OAT, and I split my dose with her to help us both survive.”</i></p> <p><i>“Getting reestablished in an OAT program is a painful process. Our clients can be in active withdrawal and dealing with much pain. Yet they get a checklist of tests and documents to collect. They can barely stand, and we send them for a chest x-ray or a urine test. Then they should wait a few days for the test results while managing withdrawal symptoms. Wouldn’t it be more humane to deal with their pain first and then send them on errands?”</i></p>
Refugee patients	<p><i>“On my arrival in France, I still had a few weeks of medication. I kept my mouth shut until we were housed. Only then I told our case manager about my OAT history. He was surprised that this aspect of my medical record did not come up during the intake. I told him I was not proud of being a junkie who needed help. ‘Why are you calling yourself a junkie? You are a patient!’</i></p> <p><i>“My friend escaped to Germany. Since he had some OAT with him, he was afraid to disclose this part of his medical history. He was placed in a remote village, almost two hours from the nearest OAT center. Had he disclosed his needs, his placement would have been different.”</i></p>
Patients living with HIV	<p><i>“Social support has played a crucial role in supporting adherence to HIV and OAT treatments for our patients. When patients relocate, their social networks change, increasing their chances of falling out of treatment.”</i></p> <p><i>“Local physicians underestimate this looming tragedy (HIV crisis). When an OAT patient living with HIV gets their dosage reduced, they will likely abandon ART. They believe that ART reduces methadone’s efficacy. I know patients who prioritized methadone over ART to avoid withdrawal symptoms. AIDS may happen in the future, but withdrawal occurs now.”</i></p>
Women	<p><i>“If a woman uses street methadone, her substance use is only a rumor. However, upon enrolling in an OAT program, it becomes her official diagnosis. This official record could be used by anyone to legally challenge her parental rights. For women who love their kids, this possibility of defending their parental rights in court could be a barrier to OAT persistence.”</i></p> <p><i>“One OAT patient was physically assaulted by her husband. She called the police. The mother-in-law, protective of her son, tried to shift the blame by calling our patient a junkie unfit to be a mother. It worked, and the officers promptly forgot about physical assault accusations. The kids were removed from that house, and their mother fought in court to restore her parental rights.”</i></p>

Table 3 –

Clinic level challenges

Domain	Quote
Established patients treated as new	<p><i>“Displaced patients from paid OAT programs had to start all over in a state program. A patient could have been a regular in a paid program for a decade, but now he is under observation for three to six months. It means he must be in the clinic daily and take required ambulatory tests every few weeks.”</i></p> <p><i>“As a displaced person, I live on a monthly stipend of 2000 UAH. My daily trips to the OAT center cost me 750 UAH. Add to that the cost of ambulatory tests, and then it is more than half of my monthly stipend. I begged the administration to let me come once in ten days since I’ve been an OAT patient for years. They wouldn’t budge.”</i></p>
Increase in new patients	<p><i>“In Lviv, we queued for hours at the OAT center, waiting for our turn. The staff told us their number of patients had tripled over the past few months. You could see they were barely coping with the volume. You come there and wait for hours hoping there will be enough OAT for everyone.”</i></p> <p><i>“Our city hosts hundreds of displaced people. We have one of the largest OAT programs in Ukraine, and one in four patients in our program is displaced.”</i></p>
Lack of transportation and live queues	<p><i>“One of our displaced patients has lost his ability to walk due to an explosion. This was also the reason for his lack of documents or records. Our doctors enrolled him in the program, yet he would have to visit the center daily as a new patient. He lives in a multistory building not equipped for people in a wheelchair. Our public transport lacks disability accommodations. It is a catch-22 situation.”</i></p> <p><i>“During an air raid, alert clinics would kick people out and lock their doors. Patients huddle outside, waiting for the alert to pass. It is frightening to be out there guessing whether the missile will hit you. You can hear its woosh sound growing louder as it flies over, making your blood chill. Many OAT clinics are near industrial zones and could be an easy target.”</i></p> <p><i>“The degree of desperation you feel as a patient on OAT being sick at home and unable to pick up your medicine. Early on, our program had a delivery team, but the funding ran out. Recently I had a bad case of COVID, burning up with fever, delirious, and unable to walk. Yet I had to call my doctor and get a taxi to pick up my meds. I had a respirator on, the driver lowered all windows, and the doctor waited outside the clinic. There should be a better way.”</i></p>
Clinician stigma	<p><i>“I see a positive difference in the attitude among medics in this new program. Back home, doctors told us right in the eye – ‘you are scumbags, bastards, and crackheads. Crawl back to where you came from and die.’ Imagine hearing this from your doctors.”</i></p> <p><i>“This war has eradicated our efforts to reduce stigma. Why should anyone help addicts? We should just let them die. As activists, we have invested time and effort in training medical professionals and police to combat substance use stigma. All this boiled-up negative attitude has surfaced with the war. These professionals use all means possible to show us that we are not part of society. Their calling is to help the community, not outcasts like us. Why should they treat addicts when there are kids with leukemia?”</i></p>
Closed sites and evacuated clinicians	<p><i>“Kyiv and Kharkiv are the two largest Ukrainian cities. Both cities have dozens of private OAT clinics with several thousand patients on their rosters. These private clinics closed down overnight. You could imagine the ensuing panic. Patients traveled to the nearest centers. They were desperate; they rioted and even took over one state clinic robbing its supplies.”</i></p> <p><i>“Our clinic closed in early March since all medics evacuated. Our addiction medicine doctor was the last person standing. He gave everyone a 30-day supply and announced his departure. I remember him urging me to leave the city while it is still possible. He said: ‘When the Russians come, you will be at the top of their kill list.’”</i></p>

Table 4 –

Regulatory inflexibility

Domain	Quote
Increased policing and resulting harassment	<p><i>“The police could stop you without reason and search you without witnesses. We are not talking about a simple pat down but a thorough search. They will detain you if they find your OAT and would not care about your OAT patient ID. They will sort it out after detention.”</i></p> <p><i>“Due to increased security and block posts, many patients were grabbed off the streets if they had methadone. Their methadone was confiscated, they were detained, and at times beaten up for good measure. Then, the security forces would call our doctor to confirm the patient status of the detainees. After the call, our patients are promptly released with no methadone or apologies.”</i></p>
Inability to access supportive services as an OAT patient	<p><i>“We made housing arrangements for several families escaping the war. These people arrived in the small town late on the agreed-upon date. Somehow the mayor found out these are the families of OAT patients. He declared that his village was better off without addicts while those poor people were left waiting in the cold with no immediate housing prospects.”</i></p> <p><i>“There is no chance of being housed if someone finds out you are an OAT patient. Unfortunately, there are plenty of ways for social services to figure it out. They may guess it by the way you look or talk. Many Ukrainian OAT patients have a criminal record for possession. You arrive in a new town and get housed with 200 people in a school or a dorm. The police arrive the next day for a security check. They check for documents and criminal records. It is done publicly, and that’s the time when you lose your housing. This is how I got kicked out of a church shelter. I thought churches should accept everyone.”</i></p>
Inability to drive a car as an OAT patient	<p><i>“Patients on OAT for decades are not allowed to drive a car. This limits their work prospects and their ability to move around. Of course, everyone drives. However, you must come to court to defend your rights if you are caught.”</i></p> <p><i>“I’ve been stopped by police several times for driving as an OAT patient. They told me I was unfit to drive despite my years of a spotless record. They limited my driving privileges, and I had to come to court. It is an antiquated system.”</i></p>
Lack of OAT sites in smaller towns and lack of expansion plans	<p><i>“It is impossible to become a patient in some smaller towns. All the available slots are taken. You will be waitlisted for months.”</i></p> <p><i>“Our town had 120 OAT patients. My husband wanted to join the program. The doctor told him that all available slots were taken. Someone has to die for a new place to become available. I still cannot understand what is so special about this number. Why couldn’t they have 121 patients?”</i></p>
Lack of coordination between private and state OAT sites	<p><i>“I keep in touch with a network of displaced OAT patients. Some were lucky and reestablished as patients in a new city. Some had to travel from one city to another. They arrive in one place only to learn that the local OAT program has no places left. So they had to pick themselves up and travel to another city. They bounce around like a soccer ball until they finally find a home.”</i></p> <p><i>“So many patients registered with the state programs where doses were reduced end up buying the rest of their medication from a private clinic.”</i></p>

Demographic table

Pseudonym	Gender	Age	Marital Status	Location*	Income**	Residence	Health status***	History of HIV, HCV, TB	Time in OAT
Anastasia	female	58	married	relocated	stipend	dorm	3	TB, HCV	3 years
Oleksandr	male	38	not married	hot zone	works	owns	3	none	1 year
Andrii	male	60	married	relocated	stipend	dorm	3	TB, HCV	3 years
Maria	female	55	divorced	relocated	stipend	rent	3	HIV, HCV	4 years
Serhii	male	62	not married	relocated	stipend	rent	3	none	9 years
Mykola	male	48	not married	relocated	stipend	dorm	4	HIV, HCV	11 years
Volodymyr	male	46	widowed	relocated	stipend	dorm	2	HIV, HCV	9 years
Olena	female	52	married	UA center	works	owns	3	HIV, HCV	16 years
Kateryna	female	56	widowed	abroad	works	rent	3	HIV, HCV	10 years
Ivan	male	36	partnered	relocated	stipend	dorm	3	HCV	13 years
Yurii	male	49	divorced	hot zone	works	owns	2	none	10 years
Viktoria	female	38	married	hot zone	works	owns	3	HIV, HCV	5 years
Dmytro	male	42	married	hot zone	works	owns	3	HIV, HCV	5 years
Pavlo	male	41	married	hot zone	works	owns	4	HCV	10 years
Denys	male	41	divorced	hot zone	works	owns	2	HCV	10 years
Bohdan	male	47	not married	relocated	stipend	dorm	4	HCV	1 year
Iryna	female	40	divorced	relocated	stipend	dorm	2	HCV	2 years

* relocated – internally displaced respondents originally from Donbas; UA center – central Ukraine, away from hostilities; hot zone – areas regularly shelled by the Russian army

** stipend – state stipend for internally displaced people (2000 UAH or 55 USD)

*** self-reported overall health (1 – very bad, 5 excellent)