



Ministry of Health



المعهد الوطني الفلسطيني للصحة العامة
The Palestinian National Institute of Public Health



Estimating the Extent of Illicit Drug Use in Palestine

November 2017



UNODC

United Nations Office on Drugs and Crime

KOICA

Korea International
Cooperation Agency



**World Health
Organization**

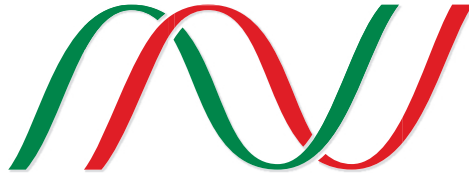
occupied Palestinian territory

United Nations Office on Drugs and Crime (UNODC)

In response to the increasing drug use and drug users' needs in the State of Palestine, UNODC Regional Office for the Middle East and North Africa, through its Programme Office in East Jerusalem, has been providing technical support to the Palestinian Authority, through its Project PSEY13: "Supporting the establishment of evidence based drug dependence treatment and rehabilitation system for the Palestine National Rehabilitation Center".

UNODC assisted in the development of a comprehensive, integrated and safe response to the problem of drug dependence. Building on the findings of **this assessment** and its recommendations, UNODC will strive to support the Palestinian Ministry of Health by developing a comprehensive drug dependence treatment and care system, fully integrated into the national health system, and by strengthening the institutional and human resource capacity of the Palestine National Rehabilitation Center to provide a comprehensive package of drug dependence treatment and rehabilitation services within the continuum of care through community based services.

UNODC seeks to achieve security and justice for all by helping Member States and their peoples to guard against the serious threats posed by drugs, crime and terrorism.



المعهد الوطني الفلسطيني للصحة العامة
The Palestinian National Institute of Public Health

Estimating the Extent of Illicit Drug Use in Palestine

November 2017

Resource people

- Lisa G. Johnston, University of California, San Francisco, and Tulane University, Louisiana, School of International Health and Tropical Medicine, USA.
- Kamran Niaz, United Nations Office on Drugs and Crime (UNODC) - Statistics and Surveys Section, Research and Trend Analysis Branch, Vienna.

Biological testing and processing

All biological tests were conducted at the study sites in both the West Bank and Gaza Strip. Screeners carried out urine screening tests for illicit drugs using the Abon Multi-Drug Test that screens for 10 types of drug, in addition to the Arco Biotech kit to screen for Tramadol. We also used Besure USA kits for HIV rapid tests, hepatitis B, and hepatitis C. Lab technicians from the Ministry of Health carried out the hepatitis B and C and HIV blood tests.

Acknowledgment

We would like to thank our partners Ministry of Health, Korea International Cooperation Agency, and United Nations Office on Drugs and Crime (UNODC) who will build on the findings of this assessment and its recommendations to assist in the development of a comprehensive, integrated and safe response to the problem of drug dependence and will strive to support the Palestinian Ministry of Health by developing a comprehensive drug dependence treatment and care system, fully integrated into the national health system.

We would like to express our thanks to the Palestinian Minister of Health, Dr. Jawad Awad; the Deputy Minister of Health, Dr. Asad Ramlawi; the Head of the Committee on Substance Abuse, Dr. Yousef Abu-Rish in the Gaza Strip; and the Deputy Director of the Anti-Narcotic Department in the West Bank, Breg Abdallah Ilawie for their support throughout the study. We are also grateful to all of our collaborators: the Director of al Maqdesy Counselling Center, Mr. Issam Jwehan and his team who were responsible for data collection; the field manager in the Gaza Strip, Mr. Ghassan Awad and his team; the Mehawer Charitable Organization for hosting our study in Hebron; and the Youth Social Center for hosting our study in Shufat camp.

West Bank Team

Nablus Team

Site manager: Akram Mattour

Interviewers: Baida Taqywe, Shamous Harb, Ohood Eqyl

Screener: Luai Shatara

Coupon manager: Ali Shtaye

Lab technician: Yasser al Khayat

Shufat Team

Site manager: Ghada Mohsen

Interviewers: Abdallah Ghazal, Rita Joulani, Razan Qawasme

Screener: Mahmoud Zaghoul
 Coupon manager: Rashad Sadqa
 Lab technician: Amer Mtear

Hebron Team

Site manager: Nasser Hamamreh
 Interviewers: Safa' Khalil, Amina Manasra, Samah Abdel Hadi
 Screener: Sultan Abu Sneineh
 Coupon manager: Akram Abu Rayan
 Lab technician: Enaya Abu Hadid

Gaza Strip

Gaza team

Site manager: Ghassan Awad
 Interviewers: Ehab al Ajrami, Shayma Abu Jayyab, Somia Yaghi
 Screeners: Belal al Saqqa and Mohammad Jad Allah
 Coupon manager: Mostafa Abu Warda
 Lab technician: Salah Inmeilat

Funding

This study was supported by generous funds from the Korea International Cooperation Agency through the United Nations Office on Drugs and Crime, and Palestinian National Institute of Public Health.

For more information about the research, Please contact PHIPH
www.phiph.org
<https://www.facebook.com/PNIPH1/>

TABLE OF CONTENTS

Abbreviations/Acronyms.....	7
Executive Summary	8
Background And Rationale.....	12
Illicit drug use	12
Illicit drug use in Arab countries.....	12
Illicit drug use in Palestine	12
Methodology	14
Study sample	14
OVERVIEW OF STUDY FINDINGS	16
Overview: High risk of drug use in Palestine.....	16
Main findings	18
Population size estimations.....	18
Intake of drugs in the week prior the study survey	19
Drug use by drug type.....	21
Marijuana and hashish.....	21
First non-injection drug use other than hashish or marijuana.....	22
Non-injection drug use in previous month other than hashish or marijuana	23
Injection drug use	24
First use of drugs before 18.....	25
Locations to buy and use drugs.....	25
Treatment and other services for drug users.....	25
Services for injection drug use	26
Treatment services in prison.....	27
Health, social, and economic consequences of drug use	27
Effects of non-injection drug use other than hashish and Marijuana.....	27
Experience with the police and prison.....	28
Sexually Transmitted Infection.....	28
Sociodemographic characteristics	29
Age, education, marital status, and source of income.....	29
Place of birth, identification status, and residence.....	30
Living conditions	32

Money spent on drugs	32
Risk behaviors among high risk drug users.....	32
Cigarettes and hookah.....	32
Alcohol use.....	33
Sexual practices.....	33
Risk behaviors associated with injection drug use.....	35
Discussion	36
Recommendations.....	41
Annex 1: Study procedures	43
Population size estimation	45
Multiplier Calculation.....	46
Confidence intervals for the multiplier method.....	46
Annex 2. drug User: Screening Form	47
Annex 3. Study Questionnaire.....	50
Annex 4. Characteristics of seeds in the four study sites, Palestine.....	62
Annex 5. Locations to buy and use drugs, Palestine, 2017	64
Annex 6. Treatment of non-injection drug use, Palestine, 2017	65
Annex 7. Past month Injection drug use, Palestine, 2017	66
Annex 8. sharing practices In previous week among those who ever injected drugs, Palestine, 2017	67
Annex 9. Cleaning needles or syringes among those who reported ever injecting drugs, Palestine, 2017	68
Annex 10. Treatment for injection drug use, Palestine, 2017	69
Annex 11. Experience with the police and prison, Palestine, 2017	70
Annex 12: sexually transmitted infections (STI) and HIV testing, Palestine, 2017	71
References.....	72

LIST OF TABLES

Table 1. Calculated population of the male population aged 15 and above on size estimations by region.....	18
Table 2. Marijuana and hashish use, Palestine, 2017.....	21
Table 3. First non-injection drug use, Palestine, 2017.....	22
Table 4. Non-injection drug use in previous month and week, Palestine, 2017.....	23
Table 5. Ever injected drugs and age of initiation of injection drug use, Palestine, 2017.....	24
Table 6. Services for injection drug use.....	26
Table 7. Effects of non-injection drug use, Palestine, 2017.....	28
Table 8. HIV and hepatitis biological results, Palestine, 2017.....	28
Table 9. Age, education, marital status, Palestine, 2017.....	29
Table 10. Place of birth, identification status, and residence, Palestine, 2017.....	30
Table 11. Living conditions.....	32
Table 12. Cigarettes and hookah, Palestine, 2017.....	32
Table 13. Alcohol use, Palestine, 2017.....	33
Table 14. Sexual practices among HRDU, Palestine, 2017.....	34

LIST OF FIGURES

Figure 1. Map of Palestine.....	15
Figure 2. Recruitment graph of HRDU in Gaza, Palestine, 2017.....	16
Figure 3. Recruitment graph of HRDU in the south, Palestine, 2017.....	16
Figure 4. Recruitment graph of HRDU in the north, Palestine, 2017.....	17
Figure 5. Recruitment graph of HRDU in the middle region, Palestine, 2017.....	17
Figure 6. Urine test analysis in Gaza, Palestine, 2017.....	19
Figure 7. Urine test analysis in south of the West Bank, 2017.....	20
Figure 8. Urine test analysis in north of the West Bank, 2017.....	20
Figure 9. Urine test analysis in the middle region of the West Bank, 2017.....	21
Figure 10. Frequency of hashish or marijuana use in a typical week.....	22
Figure 11: First use of drugs below 15 and below 18.....	25
Figure 12. Person who made referral for last treatment, Palestine, 2017.....	26
Figure 13. Effects of non-injection drug use on health.....	27
Figure 14. Source of income during the previous month.....	30
Figure 15. Sharing practices at last injection among those who ever injected drugs, Palestine, 2017.....	35
Figure 16: Unique object card.....	44

Abbreviations/Acronyms

HIV	Human Immunodeficiency Virus
HRDU	High Risk Drug Use/User
HTC	HIV testing and counseling
NGO	Non-Governmental Organization
OST	Opioid substitution therapy
PWID	People who inject drugs
PWUD	People who use drugs
RDS	Respondent Driven Sampling
RDSAT	Respondent Driven Sampling Analysis Tool
SS-PSE	Successive sampling-population size estimation
STI	Sexually Transmitted Infection
WHO	World Health Organization

Executive Summary

The unique socioeconomic context in Palestine, characterized by political and economic tensions, has created conditions that facilitate the spread of illicit drug use among Palestinians. Data are lacking on the extent of high-risk drug use (HRDU) in both the West Bank and Gaza Strip but are a prerequisite to inform policy-making. HRDU is defined as 'recurrent drug use that causes actual harm (negative consequences) to the person (including dependence, but also other health, psychological or social problems) or places the person at a high probability/risk of such harm'. The overall objective of this study was to provide insight into the extent of male HRDU in Palestine. This survey sampled only male participants based on findings from formative research indicating that females are not connected socially to males and/or to other females who use drugs. The study had four sites representing the Gaza Strip and the three regions in the West Bank: north, middle, and south.

The study found that drug use is not confined to specific areas or localities within Palestine, but is widely distributed across the West Bank and Gaza Strip. Based on the data, it is estimated that there are 26,500 high risk drug users (HRDU) in Palestine, comprising 1.8% of the male population aged 15 and above.

In both the West Bank and Gaza Strip, HRDU were found to comprise 1.8% (16453 HRDU in the West Bank and 10047 HRDU in the Gaza Strip) of the male population aged 15 and above. Estimated drug use was highest in the north and south (1.9%), while it was 1.4% in the middle region. Among HRDU, Hashish/marijuana¹ and synthetic marijuana² were the most used drugs in West Bank while prescription drugs Tramadol³ and Lyrica⁴ were the most used in Gaza. Despite the fact that urine analysis does not test for all possible drugs, and some drugs cannot be detected in the urine after 48 hours of intake, 53% of HRDU in Gaza, 63% in both the north and the south, and 89% in the middle were poly drug users (had more than one drug in their system). Percent of HRDU who start taking non-injection drugs other than hashish/marijuana as children (before turning 18) was 44% in the north, 17% in the middle, 56% in the south, and 24% in Gaza.

The percent of HRDU who ever injected drugs in the West Bank is much higher than that in Gaza- 8% vs 2%, respectively. Estimated number of male HRDU who ever injected drugs is 532 in the north, 354 in the middle, 464 in the south, and 241 in Gaza. Percent of HRDU who ever used injection drugs before 18 was 61% in the north, 20% in the south, but no one among the HRDU in the middle West Bank or in Gaza. Of those who reported ever injecting drugs, the majority in Gaza reported using cocaine⁵, whereas the majority in the south and middle reported injecting heroin⁶. In the north, almost equal percentages reported injecting heroin and cocaine.

1 Hashish and Marijuana (weed) originate from Cannabis plant. Hashish is resin and weed is made of the dried flowering tops of the cannabis plant.

2 Synthetic marijuana «Spice», one of a new group of drugs called 'new psychoactive substances' (NPS) which is a wide variety of herbal mixtures that are potentially more lethal than other drugs.

3 Tramadol ; A prescription drug that affects the central nervous system and is used primarily to treat severe pain.

4 Lyrica is an anti-epileptic prescription drug (Anticonvulsant)

5 Cocaine (Crack, Coke) is an Illegal drug, a powerfully addictive stimulant drug made from the leaves of the coca plant native to South America

6 Heroin is an Opioid, highly addictive and the most harmful drug type; the use of opioids is associated with the risk of fatal and non-fatal overdoses; and the risk of other medical and psychiatric co-morbidities

In the north, the majority of HRDU had benzodiazepines (74%) and amphetamines (67%) in their system. Almost one-quarter of HRDU were found to have methamphetamines in their system. Based on study findings, there are 5700 HRDU taking synthetic marijuana, and 960 taking hallucinogens. Almost 6% were found to have ten or eleven drugs in their system.

In the middle region, 96% of HRDU were found to have tricyclic antidepressants⁷ and 28% were found to have methamphetamines in their system. Based on HRDU reports, the largest number of HRDU taking hallucinogens⁸ (1000), methamphetamines (400), and heroin (600) is in the middle.

In the south, urine screening for drugs found that 75% of HRDU had marijuana or hashish, and 64% had benzodiazepines in their system. The majority of HRDU had benzodiazepines (74%) and amphetamines⁹ (67%) in their system. Almost one-quarter of HRDU were found to have methamphetamines¹⁰ in their system. The largest number of HRDU taking cocaine (400), synthetic marijuana (5000), and methamphetamines (440) is in the south. Urine screening found that almost 6% were found to have ten or eleven drugs in their system.

In the Gaza Strip, urine test found that almost all enrolling HRDU had Tramadol, while 28% had marijuana or hashish, and 22% had benzodiazepines¹¹ in their system. No one had cocaine in their system. Based on HRDU reports, there is 7100 HRDU taking hashish/marijuana, 9950 taking Tramadol, and 5400 taking Lyrica.

More than 94% of HRDU smoked cigarettes and/or hookah. Few HRDU in Gaza reported ever consuming alcohol (3%) whereas 68% in the north, 27% in the middle, and 60% in the south reported ever consuming alcohol. More than half of HRDU in the north, the south, and in Gaza had more than one sex partner, while more than half of HRDU in the middle had more than 5 sex partners. Use of condom in the last intercourse was very low; between 8% in Gaza and 33% in the north.

No HRDU were seropositive for HIV/AIDS at all study sites. Hepatitis B infection was below 4% for all areas. With the exception of the middle region where 11.5% of HRDU have hepatitis C, all other areas had a hepatitis C below 5%.

Study recommendations

Prevention of substance use

- Enhance youth programs to include healthy lifestyle choices and support for young people who may be vulnerable to drug use. One of the interventions is to develop and improve recreational facilities and provide access for children and youth to regular sports and cultural activities.

7 Tricyclic Antidepressants are a very large class of antidepressant drugs, where there is a high risk of death from overdose.

8 Hallucinogens, like LSD are a diverse group of drugs that alter perception (awareness of surrounding objects and conditions), thoughts, and feelings. They cause hallucinations, or sensations and images that seem real though they are not.

9 Amphetamines are Psychostimulants prescription drugs, used to treat attention deficit.

10 Methamphetamines (Meth, Speed) is a derivative of amphetamines, also called crystal, illegal.

11 Benzodiazepines (Anxiolytics, sedatives, and hypnotics) are Tranquilizers like valium and Xanax

- Increase education about the risks of drug use, HIV, and hepatitis for young people, and ensure harm reduction and outreach programs for young people.
- Develop programs that have socio-psychological components to deal with the root causes of problem drug use.
- Introduce rehabilitation services in prison that include vocational training to help former PWUD reintegrate into society, find employment, and remain healthy and drug-free once they are released.
- Provide post-treatment rehabilitation supervision and social integration services.
- Enhance cooperation between public health, education and law enforcement authorities when developing prevention initiatives

Support for families of drug users

- Support PWUDs and their families with social services, health insurance (especially for children), and food stamps to help them survive.
- Develop comprehensive, confidential and affordable counseling programs for families of PWUDs (legal, psychosocial and health) to help them deal with a family member on drugs.
- Awareness programs about the services available to PWUD and their families.

Harm reduction or prevention treatment and care of health consequences of drug use

- Increase outreach efforts/policy changes, including reducing the stigma and discrimination related to PWUD.
- Take advantage of the fact that PWUD and HRDU constitute a large social network (confirmed by the effective recruitment of HRDU in this study) to deliver prevention through peer-driven intervention modalities, including overdose prevention.
- Investigate and implement best practice for PWUD-targeted programs to provide STI including HIV and harm reduction education, effective drug treatment and maintenance modalities, condom distribution, and easy access to needles to reduce the spread of infections.
- Educate health staff to improve prevention services that target high-risk populations, especially PWUD.
- Educate pharmacists on the needs of PWUD; allow PWUD to access clean syringes at pharmacies.
- Provide free health services for PWUDs and their families that provide confidential and regular medical tests and checkups.
- Promote an effective human rights-based criminal justice response to drug problems and focus more on harm reduction rather than punishment.
- Provide adequate treatment and counseling in prison settings.

Treatment and care of people suffering from drug use disorders

- Scale-up or initiate effective treatment programs that are friendly and affordable to PWUD and HRDU and can cater to different types of drug dependency issues.

- For both those who use and inject drugs, improve any existing treatment programs and enhance outreach programs.
- For those who are using or injecting opioids, expand opioid substitution therapy (OST), harm reduction, including needle and syringe exchange programs, and effective treatment programs.
- Educate and ensure that treatment providers are provided with the most effective medications and treatment modalities for specific drug types.
- Involve families in the treatment and recovery of problem drug users.
- Scale-up or initiate effective treatment programs that are friendly and affordable to PWUD and HRDU and can cater to different types of drug dependency issues.
- Educate and ensure that treatment providers are provided with the most effective medications and treatment modalities for specific drug types.
- Monitor and evaluate the effectiveness and efficacy of existing treatment centers
- Initiate female-friendly wellbeing centers, a greater number of female social workers and counselors, safe homes for current and former female drug users, and legal support to protect women from abuse by partners who use drugs.

Developing a drug use monitoring system

- Conduct future surveys using the same sampling method and eligibility to monitor changes in drug use behaviors and HIV or other infections, and to monitor the impact of interventions.
- Conduct research to understand more about prescription drug use, including if many users are on a prescription or are taking these medications without the supervision of a medical professional.

BACKGROUND AND RATIONAL

Illicit drug use

Drug use is criminalized, hidden, and stigmatized in most societies. It is estimated that about 5% of the global adult population used drugs at least once in 2015 and around 0.6% of the global adult population suffer from drug use disorders, including dependence [1].

Illicit drug use in Arab countries

The Mediterranean region has been affected by the widespread use of illicit drugs [2, 3]. The increasing prevalence of illicit drug use in Arab countries is related to growing exposure to new types of addictive substances and the booming opportunities for income generation through the smuggling and selling of drugs [4]. A major barrier to combating illicit drug use in the Arab and Middle Eastern region is the role of these countries in the production and trafficking of drugs. For instance, Afghanistan currently hosts heroin laboratories [5] and has been the world's largest supplier of cultivated opiates since the 1950s [2]. Opiates and heroin are trafficked into Pakistan, the former Soviet Union, and Iran. In Iran, opiates and heroin are used locally but are also trafficked to Turkey, which in turn transfers them to the European Union [5]. Morocco, Pakistan, Afghanistan, and Lebanon are major sources of cannabis and other drugs [2].

Although the extent of illicit drug use in Arab countries is difficult to estimate due to the limited availability of research and stigmas associated with illicit drug use [3], available data indicate the abuse¹² of Tramadol (a drug that affects the central nervous system and is used primarily to treat severe pain) in Egypt [6], heroin in Libya, cannabis and heroin in Morocco and Algeria, and of different illicit drugs in Jordan [7]. In Saudi Arabia, the most commonly used illicit drugs are amphetamines, heroin, and cannabis, with trends increasing in the use of cannabis and amphetamines [8]. In another study that assessed the perception of drug use among adolescents in the West Bank, the illicit use of drugs, including hashish and marijuana, was perceived to be "common" by participants [9].

Illicit drug use in Palestine

In Palestine, the unique socioeconomic context, characterized by political and economic tensions, has created conditions that facilitate the spread of illicit drug use. Palestinians face political violence, house demolitions, arrests, restrictions on movement, and encroachment on their land. Illicit drug use is used by Palestinians as a coping mechanism while living under these harsh, and often humiliating, conditions [10]. Palestinian youth who experience disenfranchisement and alienation within their own culture are those primarily affected by these conditions [10]. Research among Tramadol users in the Gaza Strip found that recurrent attacks, the siege imposed by the Israeli occupation, and the high unemployment rates, particularly among university graduates, are factors associated with the widespread abuse of Tramadol [11]. Illicit drug use has been reported to provide users, especially young users, with the opportunity to "escape problems", obtain a "feeling of relaxation", to "not think", and to "fall asleep" [12].

12 Defined as the habitual taking of addictive or illegal drugs.

Additionally, traumatic events generated by the Israeli political violence in the Gaza Strip have been associated with an increase in illicit drug use among children [13].

Changes to the structure of the Palestinian family (i.e., from extended to nuclear families) have created a breakdown in emotional and economic support systems within families, while new social values (i.e., from conservative cultural norms to liberal individualistic western lifestyles) have created conditions for increased drug use [14]. Additional problems that have contributed to growing drug use by Palestinians include the absence of a unified Palestinian authority and police system, the internal Palestinian conflict, weak legal enforcement of laws, and limited control of borders to combat the trafficking of illicit drugs [15].

Of direct concern with respect to HIV are indications that substance use (alcohol and illicit drugs) is high among Palestinian youth and is increasing. Available data indicate that in Palestine, drug use starts as early as 17 years of age with about 80% of those using drugs aged 18-28 years [16]. UN estimates from official sources indicate that there are about 10,000 registered drug users in the West Bank and Gaza Strip, and about 15,000 in East Jerusalem [17]. It is estimated that 40% of heroin users inject the drug [17]. In the West Bank, based on Anti Narcotic Department Annual Report 2016, in 2016 compared to 2012, there was more than 2.5 fold increase in drug seizures (1437 vs 582, respectively) and in the number of arrests for drug abuse violations (1754 vs. 681, respectively). In a recent WHO study of the prevalence of HIV and HIV-related risk-taking behaviors among 82 people who inject drugs (PWID) in East Jerusalem, 51% of participants had injected drugs two to three times a day during the preceding month. Heroin was the most popular drug in the sample (87%). More than 25% of the study participants shared injecting equipment in the week preceding the survey. Only 34% of PWID reported using a condom at their most recent sexual intercourse, while 25% of PWID reported selling or buying sex (or exchanging it for drugs) in the previous 12 months [18], potentially setting the stage for an HIV epidemic within this subpopulation and beyond it.

Study Objective

Data are lacking in Palestine on the extent of high risk drug use (HRDU) in both the West Bank and Gaza Strip but are necessary to inform planned rehabilitation services. HRDU is defined as 'recurrent drug use that causes actual harm (negative consequences) to the person (including dependence, but also other health, psychological or social problems) or places the person at a high probability/risk of suffering such harm'[19]. The overall objective of this study was to provide insights into the extent and characteristics of HRDU in Palestine. The perceived quality and effectiveness of available health services was examined to identify needs and resources in support of the implementation of a drug dependence treatment and care system with a continuum of care approach.

Methodology

Study sample

A. Inclusion criteria

The inclusion criteria were:

- Male
- Used at least one drug other than non-synthetic hashish/marijuana during the week prior to the study per self-reporting that was verified by a urine test.
- Lived in the survey area where they were sampled: north, middle and south of the West Bank or the Gaza Strip.
- Aged 15 years and older.
- Held a valid participation coupon.

B. Exclusion criteria

Any person who did not meet the inclusion criteria was excluded. Any person who met the inclusion criteria but who fit any of the following exclusion criteria was also excluded from the study:

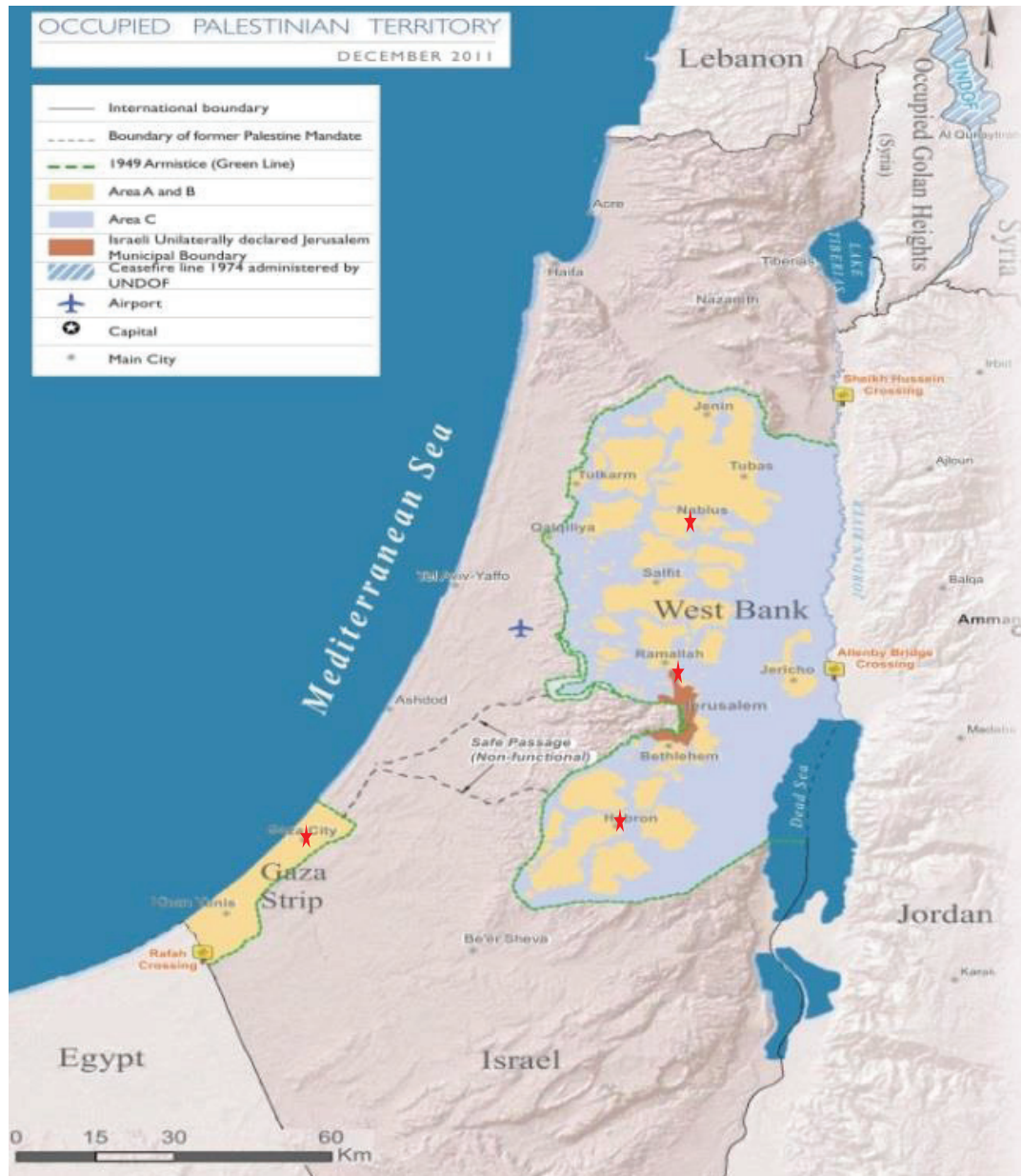
- Participant did not give informed consent.
- Participant was aggressive, violent, or intoxicated, or the data collector felt otherwise unsafe in administering the questionnaire.

C. Location

The study was carried out in both the Gaza Strip and the West Bank. In the Gaza Strip there was one site in Gaza city. The West Bank is a large geographical area with long distances and checkpoints between major cities so there were three study sites: Nablus in the north, Shufat camp in the middle region, and Hebron in the south of the West Bank. Figure 1 shows a map of Palestine with the four study sites.

Annex 1, Annex 2, Annex 3 show detailed description of study procedure, screening form and study questionnaire.

Figure 1. Map of Palestine



OVERVIEW OF STUDY FINDINGS

Overview: High risk of drug use in Palestine

From January to February 2017, 400 HRDU (including four seeds) in Gaza, 299 (including four seeds) in the south, 300 (including three seeds) in the north, and 299 (including three seeds) in the middle region, enrolled in the Illicit Drug Use Survey. The maximum number of waves in the Gaza recruitment chain was nine: there were ten in the south, 13 in the north, and 14 in the middle region (see recruitment graphics, Figure 2, Figure 3, Figure 4, Figure 5). Seeds are identified in the recruitment graph as larger squares and only have an arrow leading away from them rather than towards them. Seeds characteristics are shown in Annex 4

Figure 2. Recruitment graph of HRDU in Gaza, Palestine, 2017

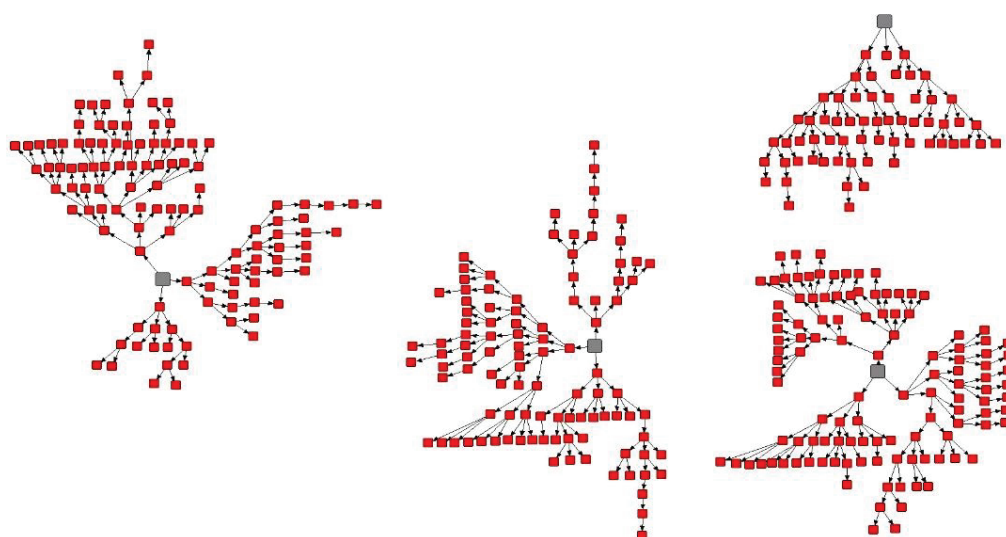


Figure 3. Recruitment graph of HRDU in the south, Palestine, 2017

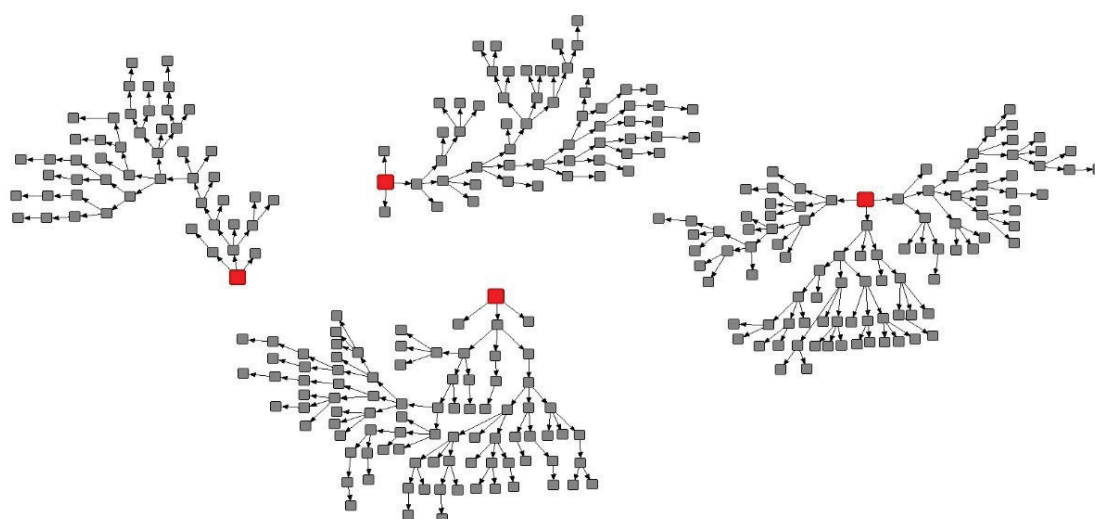


Figure 4. Recruitment graph of HRDU in the north, Palestine, 2017

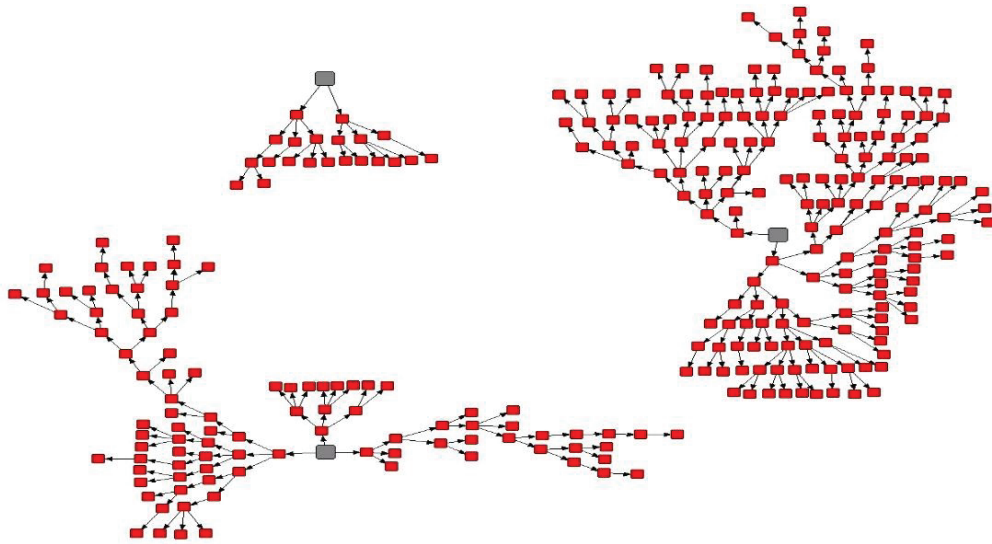
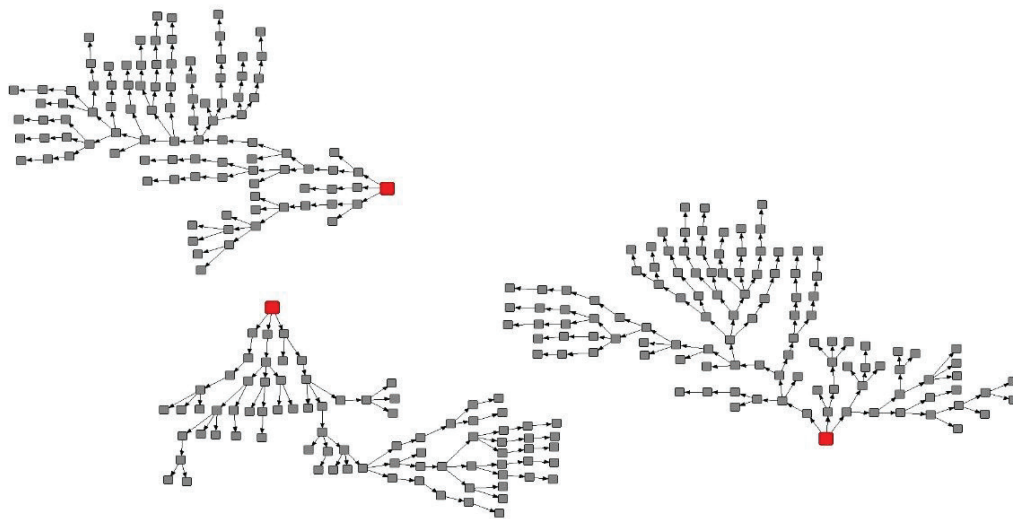


Figure 5. Recruitment graph of HRDU in the middle region, Palestine, 2017



Main findings

Population size estimations

The population size estimations varied depending on the methods (Table 1). Using the successive sampling population size estimation (SS-PSE) method, HRDU in Palestine were found to comprise 1.8% of the male population aged 15 and above (total number: 26,500). In both the West Bank and Gaza Strip, HRDU were found to comprise 1.8% of the male population aged 15 and above (total number: 16,453 in West Bank, 10,047 in Gaza Strip). Estimated drug use was highest in the north and south (1.9%).

In addition to SS-PSE methods, we used previous available estimates despite their limitations. Population size estimations from the household survey represent estimates of those who ever used drugs, including hashish among youth aged 15-24 years; estimates from the methadone center only represent estimates of those taking heroin. We were unable to use the reported estimates from participants in the West Bank (numbers were either under or overestimated), nor the unique object estimates in the north and Gaza as objects were not distributed at random. As shown in Table 1, the most inflated estimate of HRDU came from NGOs providing services for PWUD.

Table 1. Calculated population of the male population aged 15 and above on size estimations by region

	North	Middle	South	West Bank	Gaza	Palestine
Number of males 15 and above	366,400	272,452	300,636	939,488	544,657	1,484,145
Estimated number and extent of illicit drug use (number/population size estimate of males 15+)						
SSPSE*	6906 6906/366400= 1.9%	3895 3895/272452= 1.4%	5652 5652/300636= 1.9%	16453 16453/939488= 1.8%	10047 10047/ 544657= 1.8%	26500 22853/1484145= 1.8%
Household survey estimate 2014	5000 5000/366400= 1.4%	5000 5000/272452= 1.8%	4000 4000/300636= 1.3%			
Service multiplier						
Prison: Number imprisoned because of illicit drug use (administrative records) /proportion of HRDU imprisoned because of drugs						
Prison	727/.184=3951 3951/366400= 1.1%	676/0.33=2048= 2048/272452= 0.75%	326/.173=1884 1884/300636= 0.63%	7883 7883/939488 = 0.8%	8651 8651/544657 = 1.6%	16,534 16,534/14841 45= 1.1%
Treatment: Number treated in methadone center/proportion of HRDU treated at the methadone center						
Methadone	23/0.003=7666 7666/366400= 2.1%	98/.059=1661 1661/272452= 0.6%	33/0.004= 8250 8250/300636= 2.7%			
Unique object: Number distributed among HRDU/proportion of study participants who received the unique object						
		450/0.53= 5120= 1.9%	300/.141= 2128 0.7%			

NGOs (numbers)						
		20,000-25,000 20,000/272452=7.3% 25,000/272452=9.2% 7.3%-9.2%			35,000-40,000 (35,000/544657=6.4% 40,000//544657=7.3%) 6.4%-7.3%	
Perceived number from participants					712 (max 10,000: 10,000/544657=) 1.8%	

* Estimates from our RDS study

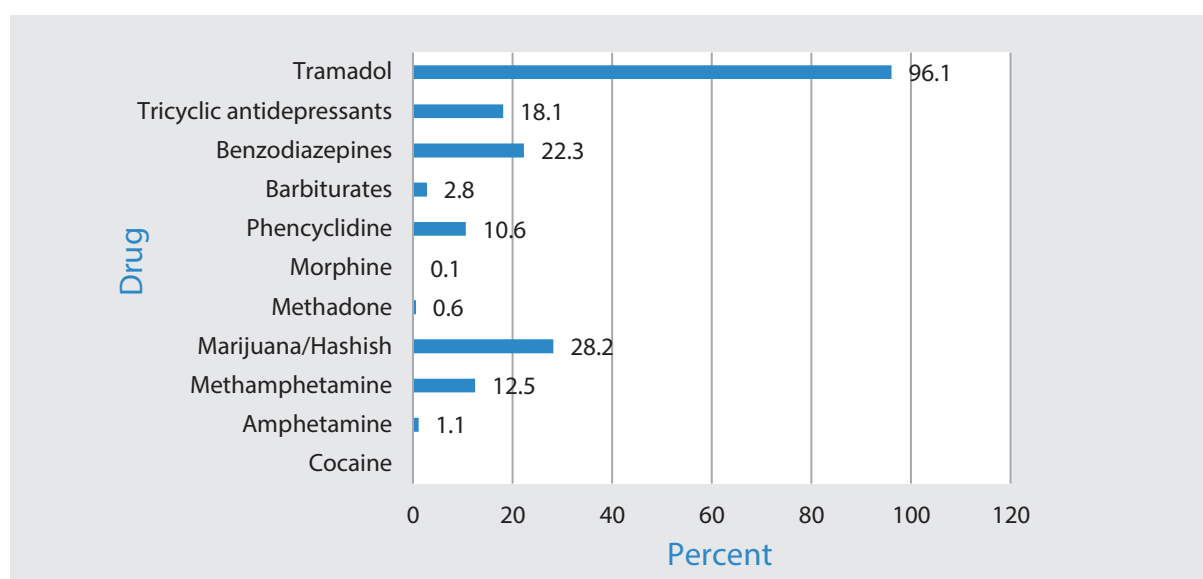
Intake of drugs in the week prior the study survey

All HRDU were asked to provide urine screening for drugs present in their systems before they could be formally enrolled in the survey. All participants had to have the presence of at least one drug, other than hashish, to be eligible to participate in the survey. The findings for this screening are found below according to the survey area.

Gaza

Although the urinalysis did not test for all possible drugs, urine screening found that 46.7% (n=191, CI. 40.3-53.5) of HRDU had only one drug in their system. Urine screening results found that almost all enrolling HRDU had Tramadol, 28% had marijuana or hashish, and 22% had benzodiazepines in their system (Figure 6). No one had cocaine in their system.

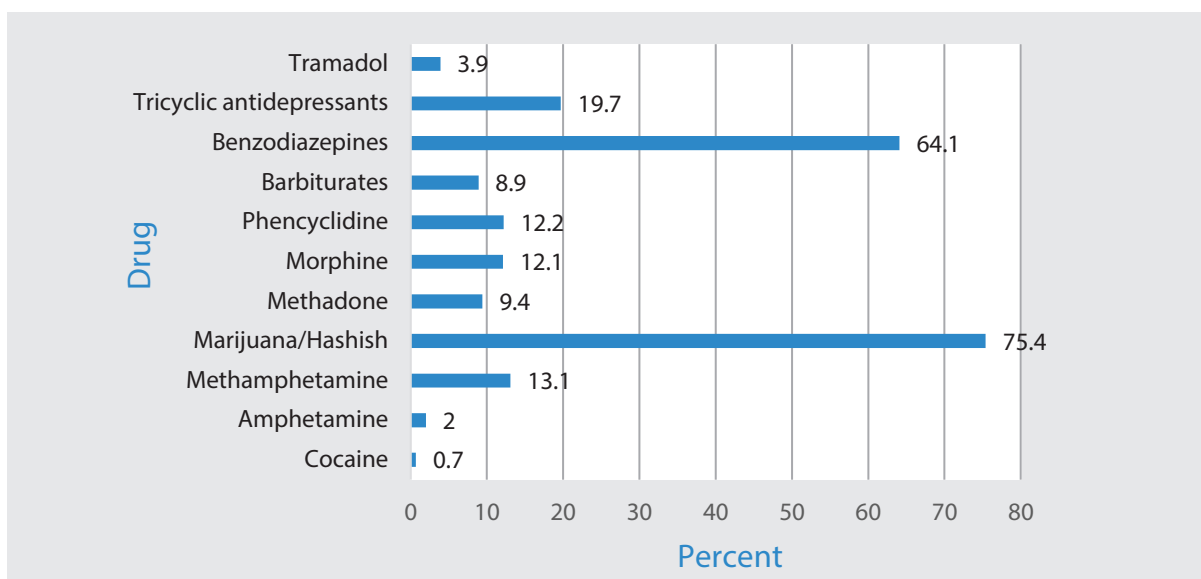
Figure 6. Urine test analysis in Gaza, Palestine, 2017



South of the West Bank

In the south, urine screening for drugs found that 75% of HRDU had marijuana or hashish and 64% had benzodiazepines in their system (Figure 7). Below 20% had other drugs in their system. The urine screening found that 6.5% (n=23, CI. 4.0-9.0) of HRDU had only one drug in their system.

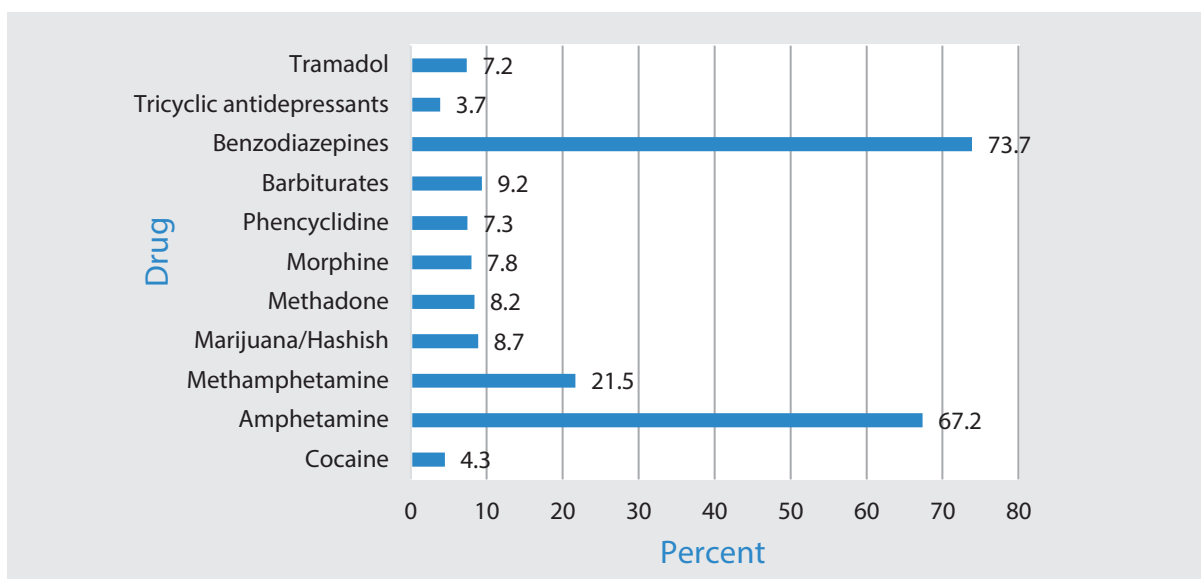
Figure 7. Urine test analysis in south of the West Bank, 2017



North of the West Bank

The majority of HRDU had benzodiazepines (74%) and amphetamines (67%) in their system. Almost one quarter of HRDU were found to have methamphetamines in their system (Figure 8). Urine screening found that 37.0% (n=127, CI. 30.6-43.4) of HRDU had only one drug in their system. Almost 6% were found to have ten or eleven drugs in their system.

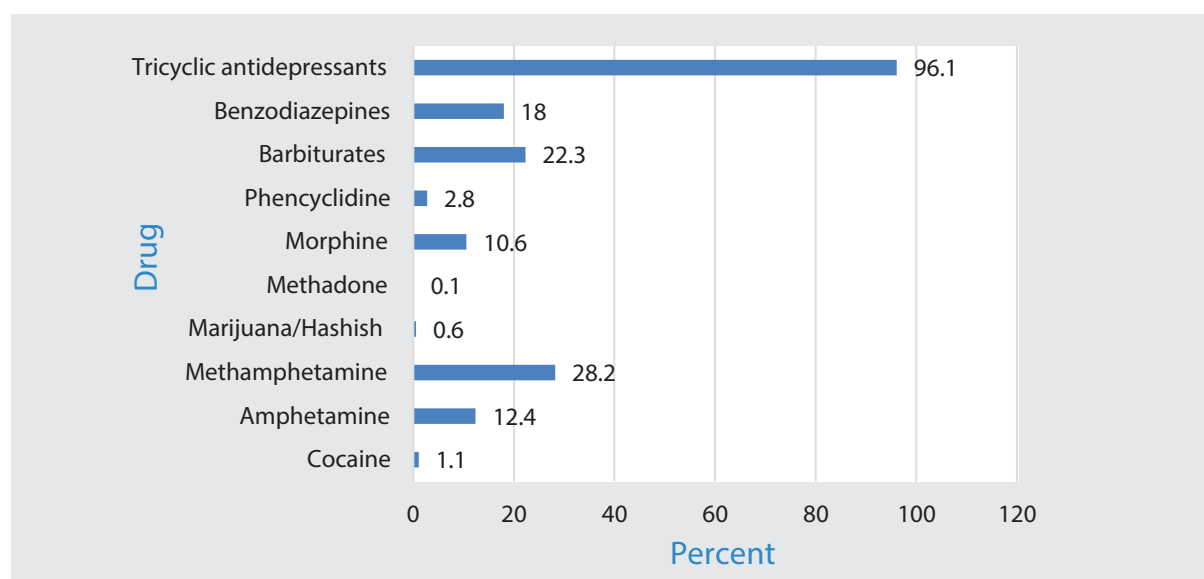
Figure 8. Urine test analysis in north of the West Bank, 2017



Middle of the WB

The majority of PWUD in the middle region were found to have tricyclic antidepressants (96%) and 28% were found to have methamphetamines in their system (Figure 9). Under one quarter of PWUD had other drugs in their system. Urine screening found that 11.5% (n=26, CI. 6.1-17.0) of HRDU had only one drug in their system.

Figure 9. Urine test analysis in the middle region of the West Bank, 2017



Drug use by drug type

Marijuana and hashish

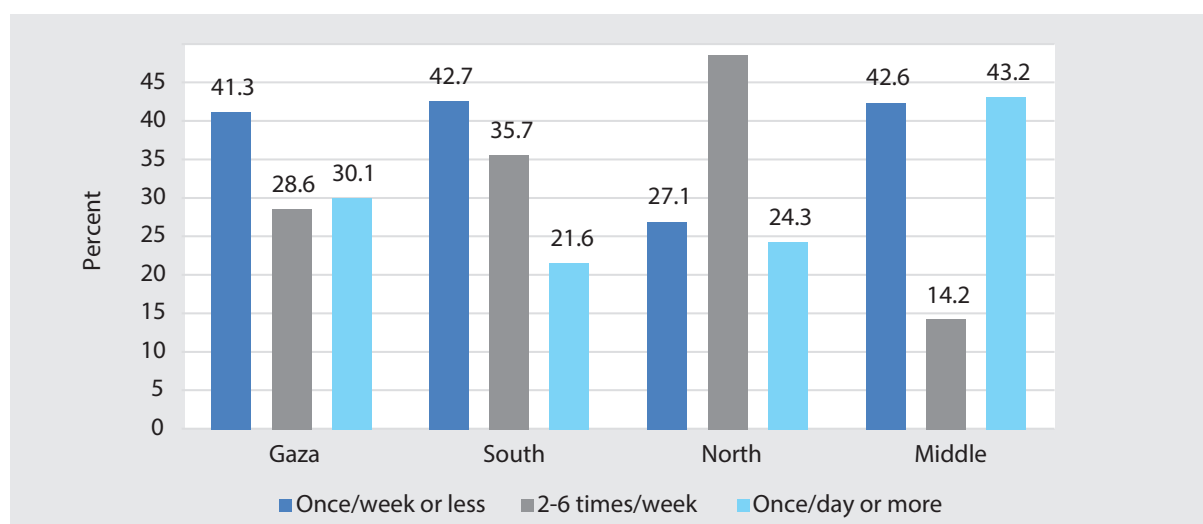
Most HRDU in all areas had ever used hashish or marijuana (Table 2). Similarly, almost all HRDU in the south and north, and almost three-quarters in Gaza and the middle region, reported using hashish or marijuana in the previous month. With the exception of the south, the median age for initiation of drug use was 18 years. The minimum ages of initiation of drug use were between 7 and 10 years.

Table 2. Marijuana and hashish use, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Ever used hashish or marijuana								
	284	70.9 (66.3-75.4)	293	98 (96.3-99.7)	283	93.1 (89.6-96.5)	286	95.1 (92.3-97.8)
Used hashish or marijuana during previous month								
	216	74.9 (68.9-80.9)	287	98.3 (96.9-99.7)	275	97.5 (95.8-99.1)	209	73.7 (67.8-79.6)
Age at marijuana/hashish first use; median (mean), range								
	284	18 (19.2), 11-66	293	17 (18), 9-40	282	18 (19.2), 10-61	284	18 (18.1), 7-35

While over 40% of HRDU in Gaza, the south, and the middle region reported using hashish or marijuana once a week or less, almost half of those in the north and one-third in the south reported using hashish or marijuana two to six times a week (Figure 10). A higher proportion of HRDU in the middle region used hashish or marijuana once a day or more compared with HRDU in Gaza, the south and north.

Figure 10. Frequency of hashish or marijuana use in a typical week



First non-injection drug use other than hashish or marijuana

The median age of first non-injection drug use ranged from 17 years in the south to 20 years in the middle region. Almost all HRDU in Gaza reported that their first type of non-injection drug used was Tramadol (an addictive opioid analgesic used as a painkiller). The highest percentage of HRDU in the north, middle and south reported using synthetic marijuana as the first type of non-injection drug (Table 3).

Table 3. First non-injection drug use, Palestine, 2017

	Gaza N = 400		South N = 299		North N = 300		Middle N = 299	
Age at first non-injection drug use other than hashish/marijuana, median (mean), range								
	400	19 (20.4), 12-54	298	17 (18.8), 10-66	299	18 (19.2), 10-55	297	20 (20.9), 10-50
First type of non-injection drug used								
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Heroin	6	1.3 (0.2-2.6)	9	3.6 (1.2-6.0)	3	0.7 (0-1.6)	35	11.8 (7.7-15.7)
Opium ¹	3	0.5 (0-1.2)	0	--	2	0.4 (0-0.9)	1	0.8 (0-4.9)
Methadone	0	--	1	0.3 (0-0.6)	0	--	3	1.1 (0-2.3)
Cocaine	0	--	6	2.2 (0.4-3.9)	0	--	1	0.4 (0-1.2)
Crack	7	0.2 (0-0.8)	1	0.3 (0-0.8)	0	--	14	3.9 (2-5.9)
Morphine	0	--	0	--	0	--	1	0.4 (0-1.0)
Steroids	0	--	4	1 (0-2.2)	0	--	0	--
Tramadol	371	93.6 (91.2-96.0)	1	0.4 (0-1.2)	2	1.3 (0-2.6)	1	0.2 (0-0.6)
Sedatives	1	0.5 (0-1.2)	1	0.4 (0-1.2)	5	1.3 (0.2-2.4)	4	1.5 (0-3.8)
Hypnotics	0	--	0	--	0	--	1	0.2 (0-0.6)
Anxiolytics ²	1	0.3 (0-0.8)	0	--	0	--	16	5.3 (2.7-8)
Hallucino- genics	5	1.2 (0.2-2.2)	3	1.2 (0-2.9)	0	--	37	13.9 (9.5-18.3)
Phencycl- idine ³	0	--	0	--	7	2.5 (0.7-4.3)	0	--

Synthetic Marijuana	0	--	83	28.6 (21.8-35.4)	170	58.4 (51.9-65)	130	42 (35.6-48.6)
Lyrica	0	--	0	--	1	0.4 (0-1.0)	0	--
Crystal	1	0.2 (0-0.5)	5	1.7 (0.1-3.3)	1	0.4 (0-1.0)	0	--
Others	1	0.2 (0-0.5)	0	--	5	1.8 (0.2-3.5)	0	--

Non-injection drug use in previous month other than hashish or marijuana

Almost all HRDU in Gaza reported using Tramadol and 54% reported using Lyrica (an anti-epileptic drug used to treat seizures and pain related to nerve damage) in the previous month (Table 4). In the south the highest percentage of HRDU reported using synthetic marijuana (88%). In the north, middle, and south the highest percentages of HRDU reported using synthetic marijuana (83%, 65%, and 88% respectively). Regarding the frequency of non-injection drug use in the previous week, the majority in Gaza reported using non-injection drugs 4 to 7 times, the south and north reported 1 to 3 times, and the middle region reported once a day or more. The median number of times HRDU reported using non-injection drugs in the previous week was either 1 or 2 with a maximum ranging from 12 times in the north to 66 times in the middle region. The majority of HRDU in Gaza, the south and middle, and 35% in the north, reported using non-injection drugs while they were alone.

Table 4. Non-injection drug use in previous month and week, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Non-injection drugs used in previous month (multiple responses)								
Heroin	0	--	22	7.0 (3.2-10.9)	4	0.9 (0.09-1.7)	48	15.5 (10.8-20.3)
Opium	0	--	2	0.6 (0-1.4)	2	0.4 (0-0.9)	4	1.8 (0-3)
Atonal	1	0.16 (0-0.4)	6	2.9 (0.2-5.5)	4	0.9 (0.04-1.8)	11	3.4 (1.3-5.4)
Methadone	0	--	2	0.5 (0-1.2)	4	1.2 (0.02-2.4)	10	3.5 (1.4-5.6)
Cocaine	0	--	23	7.2 (4.3-10.2)	4	1.2 (0-2.6)	19	5.5 (3.2-7.8)
Crack	0	--			1	0.2 (0-0.5)	4	1.6 (0-3.3)
Codeine	30	7.5 (4.8-10.3)	3	0.9 (0-2.0)	6	2 (0.4-3.6)		
Morphine	0	--	2	0.6 (0-1.4)	4	1 (0.02-2)	3	0.8 (0-1.7)
Steroids	0	--	49	16.1 (11.9-20.3)	5	1.2 (0.2-2.3)	2	0.5 (0-1.2)
Tramadol	396	99.1 (98.3-99.9)	7	2.1 (0.6-3.7)	14	3.9 (1.9-6.1)	6	1.8 (0.4-3.2)
Inhalants	1	0.2 (0-0.51)			1	0.2 (0-0.5)	1	0.2 (0-0.5)
Sedatives	51	12.6 (9.7-15.6)	10	4.5 (1.7-7.4)	39	12.8 (8.2-17.4)	9	2.7 (1-4.4)
Hypnotics	0	--	23	8.1 (4.5-11.7)	5	1.2 (0-2.5)	2	0.8 (0-1.9)
Anxiolytics	24	6.1 (3.8-8.4)	9	2.8 (1.0-4.5)	5	1 (0.1-2)	41	13.4 (8.8-18)
Hallucino-genics	37	8.3 (5.5-11)	29	9.7 (5.9-13.5)	43	13.9 (9.3-18.5)	75	26.5 (21.4-31.5)
Ketamin4	0	--	0	--	1	0.2 (0-0.5)	0	--
Synthetic Marijuana	1	0.2 (0-0.57)	261	88.5 (84.5-92.6)	244	83.5 (79.0-88.0)	195	65 (59.3-70.8)
Lyrica	215	53.6 (47.6-59.7)	4	1.2 (0.1-2.3)	2	0.5 (0-1.1)	5	1.5 (0.2-2.8)

Cough syrup with codeine	15	3.6 (1.7-5.5)	2	0.4 (0.1-0.8)	2	0.4 (0-1.1)	1	0.2 (0-0.8)
Crystal	2	0.3 (0-0.9)	23	7.7 (4.3-11.2)	16	4.8 (2.5-7)	32	10.2 (6.7-13.8)
Others	11	2.9 (1.2-4.6)	0	--	1	0.2 (0-0.5)	0	--
Frequency of non-injection drug use in previous week								
1-3 times/week	46	11.1 (8.3-14.0)	186	64.4 (57.9-70.8)	175	60.7 (54.5-66.9)	51	17.4 (12.8-22)
4-7 times/week	197	49.4 (44.5-54.4)	67	21.6 (16.9-26.2)	78	26.5 (20.7-32.3)	119	39.2 (33.5-44.8)
Once a day or more	155	39.4 (34.3-44.5)	42	14.9 (8.8, 19.3)	44	12.8 (8.6-16.9)	128	43.5 (38-48.8)
Number of times of non-injection drug use in previous day: median (mean), range								
	363	1 (1.7), 1-15	202	2 (3.1), 1-13	137	1 (0.8), 1-12	283	2 (2.7), 1-66
Used drugs alone last time you used non-injection drugs								
	314	79.4 (74.9-83.9)	155	54.8 (49.0-67.7)	102	34.8 (28.6-40.8)	171	57.6 (51.6-63.8)

Injection drug use

Ever used injection drugs

Few HRDU reported ever injecting drugs but those who did were between the ages of 20 in the north and 30 in Gaza when they first injected drugs (Table 5). The minimum age for first injecting drugs was from 13 years in the north to 18 years in Gaza and in the middle region. Of those who reported ever injecting drugs, the majority in Gaza reported using cocaine, whereas the majority in the south and middle reported injecting heroin. In the north, almost equal percentages reported injecting heroin and cocaine.

Table 5. Ever injected drugs and age of initiation of injection drug use, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Ever injected drugs								
	10	2.4 (0.8-3.8)	25	8.2 (4.1-12.3)	25	7.7 (4.2-11.1)	28	9.1 (5.3-12.8)
Age at first injection drug use: median (mean), range								
	9	30 (33.6), 18-66	25	25 (25.8), 14-40	25	20 (20), 13-55	27	27 (30), 18-66

Injection drug use in previous month

Of those HRDU who reported ever injecting drugs, no HRDU in Gaza, 69% in the south, and 51% to 52% in the north and the middle reported injecting drugs in the previous month (Annex 7). Of those who had injected drugs in the previous month, the majority in the south and the middle reported injecting heroin. In the north, 27% reported injecting Diazepam (a benzodiazepine indicated for short-term relief of anxiety, also known as Asival or Valium) in the previous month. No one reported injecting amphetamines or methamphetamines¹³ in the previous month.

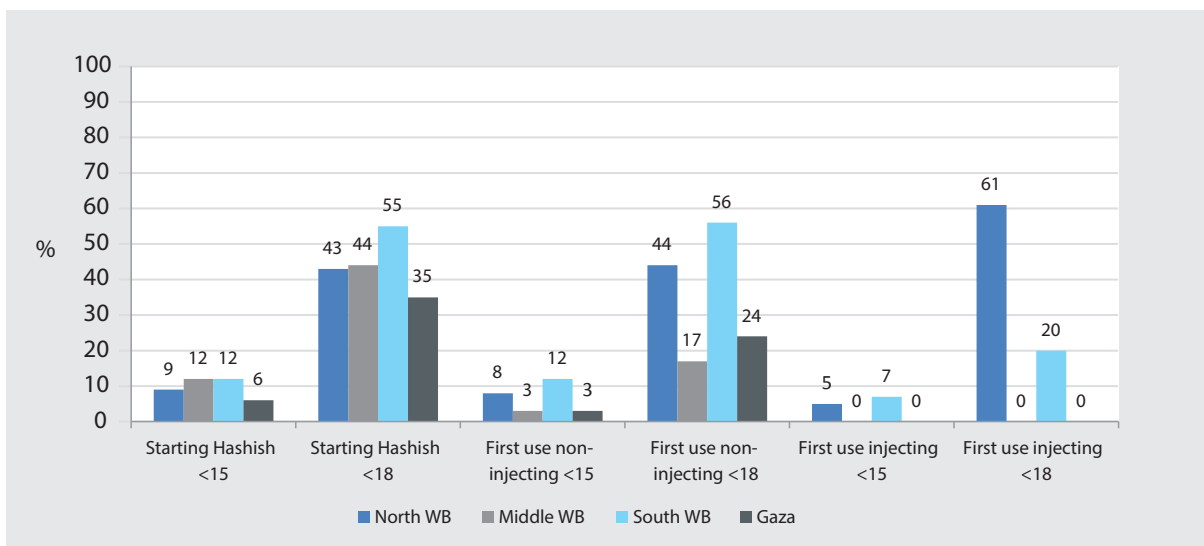
13 Addictive psycho-stimulants that increase the ability to stay awake and increase focus by raising the levels of norepinephrine and dopamine in the brain. Increased levels of these drugs can result in a sense of euphoria and an increase in energy.

When asked about where HRDU injected drugs in the previous month, the most cited place in the south, north, and middle was at a shooting gallery.¹⁴

First use of drugs before 18

Few people using drugs started using hashish or marijuana or other non-injecting and injecting drugs below the age of 15 years (Figure 11). Just under half of HRDU in the north, middle and Gaza, and just over half in the south, reported first using hashish and marijuana below the age of 18 (17 years and below). The percentage of HRDU who reported their first non-injecting drug use (other than hashish/marijuana) as 17 years and younger was 44% in the north, 17% in the middle, 56% in the south, and 24% in Gaza. Among the few who reported injecting drugs in the north and the south, 61% in the north and 20% in the south reported first injecting drugs when they were below the age of 18 years.

Figure 11: First use of drugs below 15 and below 18



Locations to buy and use drugs

The majority of all HRDU reported their respective areas as the locations where they buy and use drugs. The highest proportions of HRDU also reported buying, or most often buying, their drugs in north Gaza and Rafah. Few HRDU in Gaza lived or bought drugs in Khan Yunis (Annex 5).

Treatment and other services for drug users

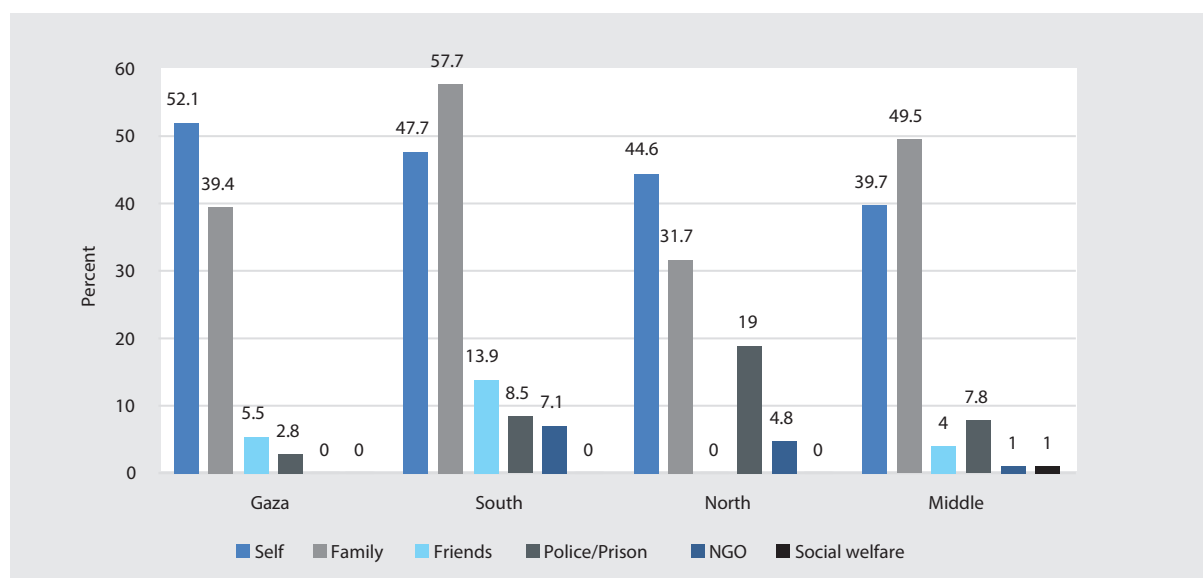
Most HRDU in all areas reported NEVER seeking treatment for non-injection drug use. Among those who have ever sought treatment for non-injection drug use, 65% in Gaza, 52% in the south, 41% in the north and 72% in the middle region reported that the last time they sought treatment for non-injection drug use was more than a year ago. When asked about where treatment was ever sought, 38% of HRDU in Gaza reported at a private doctor. Treatment was sought by the majority in the south at Sadiq al Tayeb (21%), in the north at the MoH psycho-social clinic (42%), in the middle region at Sadiq al Tayeb (21%), or at rehabilitation centers in Israel (21%). The median frequency of trying to stop using non-injection drugs in each of the four areas ranged from two

14 A place where drug users rent rooms to inject together.

to three times with a maximum range of 17 in the north and 50 in the middle region (Annex 6).

Between 40% and 52% of HRDU in the four survey areas reported seeking their last treatment themselves (Figure 12). Roughly 40% in Gaza, 60% in the south, 32% in the north, and 49% in the middle region reported that their family had made their last treatment referral.

Figure 12. Person who made referral for last treatment, Palestine, 2017



In all areas, a small proportion of HRDU reported receiving free condoms in the past 12 months (4-16%). Under 10% of HRDU in Gaza, 12% in the south, and 23% in the north and middle region knew where to obtain a free, confidential HIV test. With the exception of the middle region (23%), under 10% of HRDU in Gaza, the south and the north reported ever having an HIV test. Of those who ever had a HIV test, almost all reported receiving the results of their last HIV test; only one participant in the middle region reported a positive result. The majority of HRDU in the south (86%) and the middle region (90%) reported ever being tested for hepatitis C, whereas only 7% in Gaza and 5% in the north had ever been tested for hepatitis C.

Services for injection drug use

Of those who reported ever injecting drugs, few HRDU in all areas reported knowing of organizations and/or programs that assist people who inject drugs or offer information on HIV in their home city (Table 6). A higher percentage of HRDU in the middle region (44%, 11/28) reported ever receiving treatment in a medical center for overdosing compared to HRDU in the north (11%, 2/21), south (23%, 7/25), and Gaza (10%, 1/10).

Table 6. Services for injection drug use

	Gaza N = 10		South N = 25		North N = 25		Middle N = 28	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Knows of organization/program that assists people who inject drugs and provides HIV information in home city								
Yes	1	8.9 (0.3-17.4)	4	12.6 (2.7-22.4)	1	3.9 (1.6-6)	3	7.9 (0-16.8)
Ever overdosed to the point of losing consciousness								

Yes	5	49.2 (24.3-74.2)	11	36.3 (16.2-55.5)	12	66.4 (54.7-78.6)	18	67.5 (48.9-86.2)
Ever received treatment in a medical center for overdose								
Yes	1	10.2 (3.2-17.0)	7	23.2 (6.7-39.7)	2	11.3 (6.0-16.7)	11	43.8 (30.5-56.8)

Among those who reported ever injecting drugs, 22% (2/10) in Gaza, 28% (9/25) in the south, only 7% (2/25) in the north, and as many as 46% (13/28) in the middle region had ever sought treatment for injection drug use (Annex 10). The majority of those who ever sought treatment had done so more than six months ago. The locations where treatment was sought were as follows: the most cited locations in the south were at al Nour wal Hoda, Sadiq al Tayeb or al Maqdesy; in the north treatment was sought either at a private clinic or the Ministry of Health psycho-social clinic; and in middle region treatment was sought at al Nour wal Hoda or the methadone center in Ramallah.

Treatment services in prison

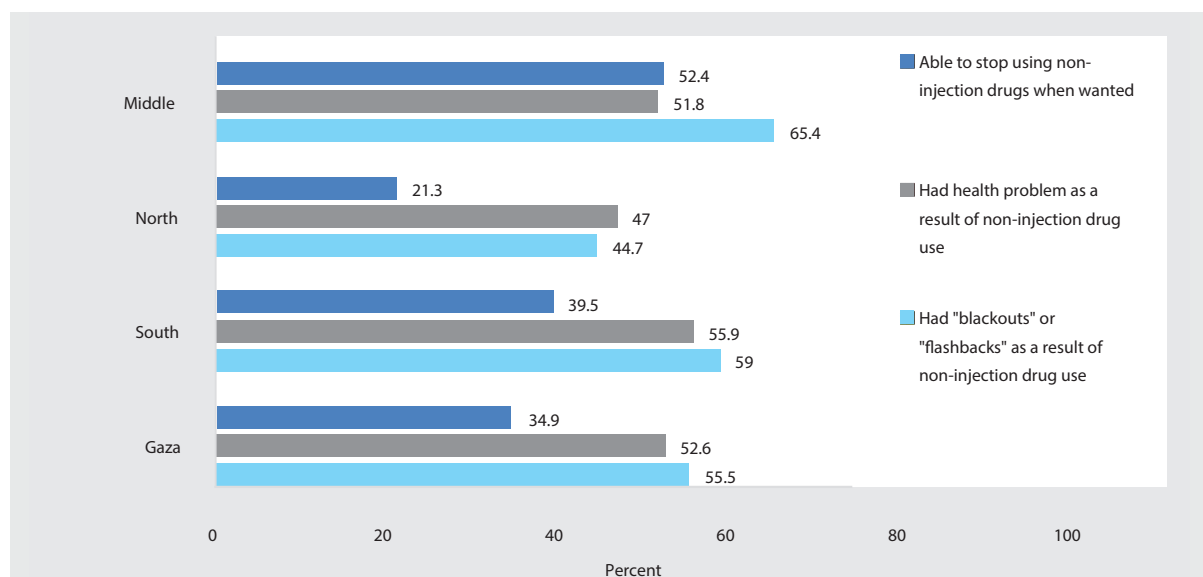
Most HRDU reported receiving no treatment services while in prison. Of the HRDU who reported receiving treatment while in prison or detention, the majority received medical treatment. Most HRDU who had ever been arrested for drug use suffered withdrawal symptoms while in prison or detention.

Health, social, and economic consequences of drug use

Effects of non-injection drug use other than hashish and Marijuana

Thirty-five percent of HRDU in Gaza, 39% in the south, 21% in the north, and 52% in the middle of the West Bank reported being able to stop using non-injection drugs when they wanted (Figure 13). Roughly half of HRDU in all areas reported having health problems due to non-injection drug use: between 45% in the north and 65% in the middle reported “blackouts” or “flashbacks” as a result of non-injection drug use. Over 65% in the middle region (18/28) and north (12/21), 49% (5/10) in Gaza, and 36% (11/25) in the south reported ever overdosing to the point of losing consciousness.

Figure 13. Effects of non-injection drug use on health



The majority of HRDU reported feeling guilty about using non-injection drugs (Table 7) and roughly one-third in Gaza and the south, 40% in the north, and 52% in the middle reported engaging in

illegal activities to obtain non-injection drugs. Eighty percent of HRDU in Gaza, 60% in the south, and 68% in the middle reported having withdrawal symptoms when they stopped using non-injection drugs. Between 60% of HRDU in the south and 77% in Gaza reported neglecting their family due to non-injection drug use, and between 45% in the south and 79% in Gaza reported that their family complained about their non-injection drug use. Between 22% in the south and 47% in the middle reported being neglected by their family due to the non-injection drug use.

Table 7. Effects of non-injection drug use, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Felt guilty about using non-injection drugs								
	359	90.4 (87.6-93.2)	250	85.4 (81.5-89.3)	248	86.0 (81.7-90.4)	256	85.6 (81-90.2)
Engaged in illegal activities to obtain non-injection drugs								
	133	33.1 (28.6-37.5)	105	34.1 (27.6-40.6)	129	39.6 (33.4-45.8)	158	52 (46-58)
Ever had withdrawal symptoms when stopped non-injection drugs								
	318	80.2 (76.2-84.3)	176	60.0 (54.0-66.1)	199	65.2 (59.5-70.9)	204	68.3 (63-73.6)
Neglected family as result of non-injection drug use								
	307	77.1 (72.6-81.4)	177	60.3 (54.2-66.5)	204	68.2 (62.7-73.8)	228	75.2 (69.2-81)
Family complained of non-injection drug use								
	259	66.9 (62.2-71.6)	135	45.2 (38.2-52.1)	159	54.5 (47.6-61.4)	236	79 (73.3-84.8)
Neglected by family as result of non-injection drug use								
	131	33.9 (28.7-39.3)	64	22.3 (17.0-27.5)	105	37.4 (31.3-43.5)	139	47.5 (40.7-54.3)

Experience with the police and prison

Between 47% of HRDU in the south and 66% in Gaza reported ever being arrested: 41% in Gaza, 32% in the north and the middle region, and 17% in the south had ever been arrested for drug use (Annex 11). Of these, between 36% in Gaza and 54% in the south had been arrested for drug use in 2017.

Sexually Transmitted Infection

No HRDU were seropositive for HIV in all study sites (Table 8). Hepatitis B infection was below 4% for all areas. With the exception of the middle region in which HRDU were found to have hepatitis C sero-prevalence of 11.5%, all other areas had hepatitis sero-prevalence of under 5%.

Table 8. HIV and hepatitis biological results, Palestine, 2017

	Gaza N = 256		South N =298		North N = 297		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
HIV positive	0	--	0	--	0	--	0	--
Hepatitis B positive	3	1.2 (0, 2.3)	9	3.0 (1.0- 5.0)	1	0.4 (0-0.8)	4	1.5 (0-2.9)
Hepatitis C positive	8	3.1 (1.2-5.1)	14	4.4 (0.6-8.2)	1	0.2 (0-0.6)	35	11.5 (7.7-15.2)

Based on participants' reports, between 1-5% were being diagnosed with an STI in the past year (Annex 12). Of those diagnosed with an STI in the previous year, HRDU in the south had the lowest percentage (25% [1/3]), while HRDU in the middle region had the highest percentage (93% [8/9]) of reported treatment for STI.

Sociodemographic characteristics

Age, education, marital status, and source of income

The median ages in each of the four sites surveyed fell between 27 and 32 years, with the maximum ages being between 59 and 86 years (Table 9). The south had the largest proportion of young (≤ 18 years) respondents (26%) and the middle region had the largest proportion of older (55+ years) respondents (5%). Most HRDU reported ever attending school: the majority only attended primary and secondary school. The median years of education ranged from nine in south to 11 in the north. Few HRDU reported being in school at the time of the survey. Between 44% (middle) and 56% (Gaza) of HRDU reported being married. With the exception of the south, the median number of children was three among those who reported currently being married. The median number of children was eight in the south.

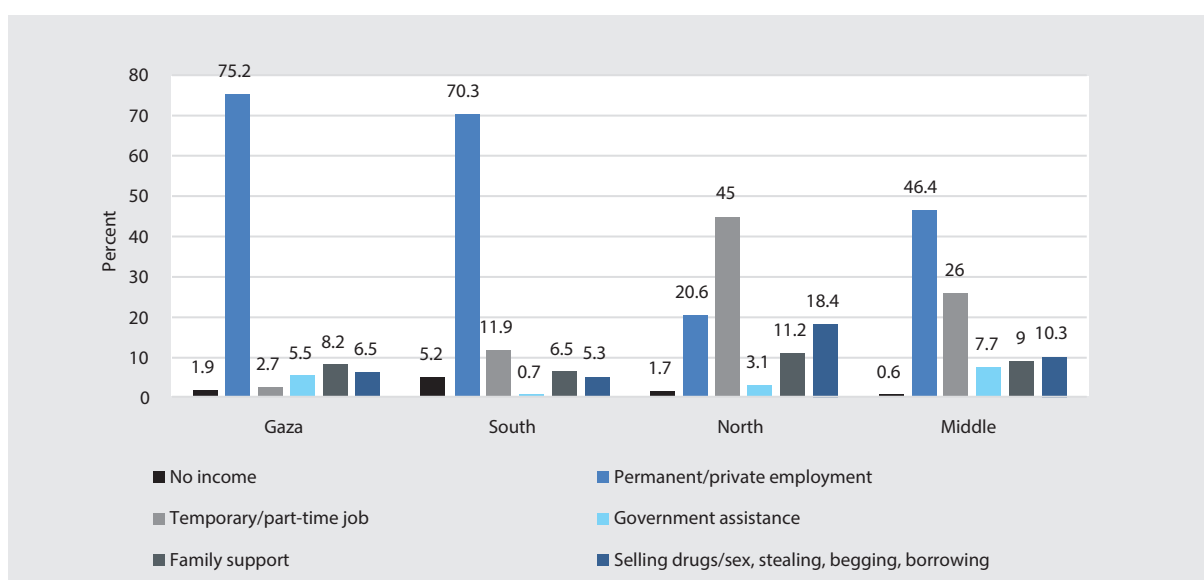
Table 9. Age, education, marital status, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
Age, median (mean), range								
	400	26 (28), 16-59	299	24 (26.7), 15-69	300	22 (26.5), 15-86	299	29 (32.3), 16-86
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Age groups								
≤ 18	9	2.3 (0.7-4.0)	76	25.7 (18.3-33.1)	49	17.0 (12.0-21.9)	15	5.7 (2.4-8.9)
19 to 24	143	35.8 (30.2-41.3)	79	25.5 (19.6-31.4)	141	45.8 (38.5-53.2)	75	27.3 (21.7-32.6)
25 to 34	194	47.5 (42.8-52.3)	90	31.5 (24.7-38.3)	61	20.7 (15.1-26.3)	115	37.9 (32.1-43.9)
35 to 44	36	9.6 (6.3-12.9)	29	9.3 (5.5-13.1)	18	6.3 (3.3-9.3)	37	10.7 (7.5-14.1)
45 to 54	14	3.6 (1.6-5.6)	11	3.7 (1.3-6.1)	14	5.2 (1.9-8.4)	39	13.1 (8-18.2)
55+	4	0.9 (0.01-1.8)	14	4.3 (2.1, 6.5)	17	5.1 (1.7-8.4)	18	5.3 (2.7-8.0)
Attended school								
	394	98.6 (97.6-99.6)	288	96.3 (93.7-98.8)	295	98.4 (96.1-100)	291	97.6 (95.9-99.2)
Education years: median, (mean), range								
	394	10 (11), 3-18	289	9 (8.6), 1-16	295	11 (9.0), 1-16	291	10 (9.2), 1-16
Educational level								
\leq Primary	67	17.9 (14.1-21.7)	58	18.8 (13.9-23.7)	50	16.8 (12.1-21.5)	65	23.4 (18.1, 28.8)
Primary to Secondary	263	65.9 (61.1-70.8)	220	77.2 (72.1-82.4)	238	80.6 (75.4-85.7)	194	65.5 (60.4, 70.7)
College	63	16.2 (12.5-19.6)	11	4.0 (1.7-6.2)	7	2.6 (0.5-4.8)	32	11.0 (7.2, 14.7)
Currently studying								
	18	4.3 (2.4-6.3)	18	7 (3.3-11.0)	6	2.2 (0.4-4.1)	13	5.3 (2.4-8.1)
Current marital status								
Single, permanent relationship, engaged,	104	25.8 (20.9-30.7)	84	29.3 (23.9-34.7)	161	52.0 (45.2-58.9)	73	24.5 (18.9-30.0)
single, temporary relationship	60	15.0 (11.4-18.6)	102	34.4 (28.7-40.0)	54	17.9 (12.4-23.5)	74	24.5 (19.5-29.6)

Married	222	55.7 (49.8-61.4)	108	34 (28.0-40.0)	77	28.0 (21.5-34.4)	130	43.8 (37.7-50.0)
Divorced, separated, widowed	14	3.5 (1.7-5.1)	5	2.3 (0-4.8)	8	2.1 (0.5-3.6)	22	7.2 (4.3-10.1)
Number of children (among those currently married); Median (mean) range								
	191	3 (3.1) 1-11	108	8 (7) 1-14	72	3 (3.6) 1-9	130	3 (3.5) 1-10
Average monthly income; Median (mean), range								
	397	800 (1154), 200-30,000	276	2000 (2209), 250-8000	297	1000 (1306), 100-9000	297	2700 (2876), 300-9000

Median monthly incomes varied greatly between areas, ranging from 800 NIS in Gaza to 2700 NIS in the middle region. Most HRDU in Gaza and the south reported their source of income to be from permanent or private employment versus just under 50% of HRDU in the middle region (Figure 14). By contrast, 45% of HRDU in the north reported their source of income to be from temporary or part-time work.

Figure 14. Source of income during the previous month



Place of birth, identification status, and residence

Few HRDU reported being born outside of Palestine (i.e., Jordan, UAE, Algeria, Saudi Arabia, Syria, Egypt, and Kuwait) (Table 10). The majority of HRDU in all areas reported holding Palestinian identification status; however, 40% of HRDU in the middle region reported holding a Jerusalem ID. In Gaza and the north of the West Bank, most HRDU reported having refugee status. Most HRDU in the south reported living in a city, most in the north reported living in a camp, fairly equal percentages in Gaza reported living in a city or a camp, and fairly equal percentages in the middle region reported living in a village or a camp.

Table 10. Place of birth, identification status, and residence, Palestine, 2017

	Gaza N = 400		South N = 299		North N = 300		Middle N = 299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Region born								

Gaza	386	96.6 (94.9-98.4)	18	6.1 (3.2-9.0)	5	1.5 (0-2.9)	4	0.9 (0.1-1.7)
West Bank	1	0.2 (0-0.5)	276	92.5 (89.5-95.6)	289	96.8 (94.6-99.0)	153	52.6 (46.4-59)
Jerusalem	0	--	4	1.1 (0.2-2)	3	0.7 (0-1.6)	138	45.1 (38.7-51.5)
Not in Palestine	13	3.2 (1.5-4.9)	1	0.3 (0-0.8)	3	1.1 (0-2.3)	4	1.3 (0.2-2.5)
Identification Status								
Palestinian Authority ID	400	100	292	97.3 (95.3-99.3)	298	99.3 (98.2-100)	178	60.1 (53.2-67.1)
Jerusalem ID	0	--	7	0.03 (0.01-0.05)	2	0.7 (0-1.8)	121	39.9 (32.9-46.8)
Refugee status								
Non-Refugee	92	23.8 (16.7-30.8)	247	82.9 (78.1-87.8)	49	19.4 (13.2-25.7)	139	46.3 (40.3-52.2)
Refugee	307	76.2 (69.2-83.3)	52	17.0 (12.2-21.9)	251	80.6 (74.3-86.8)	160	53.7 (47.8-59.7)
Type of community where participant resided								
City	187	46.4 (39.9-52.9)	264	89.2 (85.6-92.6)	38	13.0 (8.0-17.9)	77	24.0 (19.3-28.6)
Village	9	2.3 (0.5-4.1)	13	4.2 (1.8-6.6)	29	13.6 (8.3-19.0)	102	35.7 (28.6-42.8)
Camp	204	51.3 (44.4-58.1)	22	6.7 (3.9-9.4)	233	73.4 (66.5-80.2)	118	40.4 (33.6-47.2)
Residential location								
Gaza	400	100	0	--	0	--	0	--
North Gaza	151	37.2 (22.9-51.4)	--	--	--	--	--	--
Gaza	75	18.8 (7.8-29.8)	--	--	--	--	--	--
Deir al-Balah	42	10.5 (4.3-16.8)	--	--	--	--	--	--
Khan Yunis	18	4.5 (2.4-6.5)	--	--	--	--	--	--
Rafah	114	29.0 (6.2-51.9)	--	--	--	--	--	--
Jenin	0	--	3	0.9 (0-1.8)	3	0.7 (0-1.5)	4	1.1 (0.1-2.2)
Tubas	0	--	0	--	2	0.5 (0-1.1)	1	0.3 (0-1)
Tulkarem	0	--	0	--	6	1.7 (0.4-3.0)	-	
Nablus	0	--	0	--	287	96.6 (94.8-98.3)	2	0.9 (0-2)
Qalqyia	0	--	0	--	2	0.5 (0-1.0)		
Salfit	0	--	0	--	0	--	3	0.8 (0-1.7)
Ramallah/ al-Bireh	0	--	0	--	0	--	73	25.2 (19.8-30.9)
Jericho	0	--	0	--	0	--	13	4.7 (2.2-7.1)
Jerusalem	0	--	0	--	0	--	200	66.9 (60.4-73.2)
Bethlehem	0	--	46	15.7 (9.0-22.4)	0	--	0	--
Hebron	0	--	250	83.4 (76.7-90.2)	0	--	0	--

Living conditions

The majority of HRDU reported that they had a place to live at the time of the survey. Around 60% of HRDU in Gaza and south, and just under 50% in the north and middle region, reported living in their parent's house during the previous three months. In Gaza, 37% of HRDU reported living in the north of Gaza, followed by Rafah (29%).

Table 11. Living conditions

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Does not have a place to live now								
	27	6.6 (3.8-9.3)	12	4.2 (1.4-7)	32	10.3 (6.8-13.8)	33	9.8 (6.5-13.0)
Location where lived most often during past three months								
Own/ rented house	145	36.9 (31.7-42.0)	110	35.5 (29.8-41.4)	136	46.8 (40.8-53.0)	153	49.4 (43.9-54.9)
Parent's house	249	61.7 (56.4-66.9)	169	57.4 (51.2-63.6)	133	44.5 (38.5-50.5)	135	46.2 (40.6-51.9)
Other*	6	1.4 (0.2-2.5)	20	7.0 (3.6-10.4)	31	8.7 (5.7-11.5)	10	4.3 (1.4-7.3)

* Other person's house, no permanent location, prison

Money spent on drugs

The amount of money spent on drugs daily varied greatly between areas. The highest median amount spent on drugs was in the middle region (70 NIS) and the lowest median spent on drugs was in the south (15 NIS).

Risk behaviors among high risk drug users

Cigarettes and hookah

The majority of HRDU in all areas reported smoking either cigarettes or hookah (Table 12). The median numbers of cigarettes smoked daily in each of the four sites surveyed fell between two and 20, with the maximum numbers between 16 and 100. The median number of hookah smoked per day was two in Gaza and the middle, and one in the south and the north.

Table 12. Cigarettes and hookah, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Smoked cigarettes or hookah								
	387	97.1 (95.4-98.6)	293	97.7 (96-99.4)	286	96.4 (94.6-98.3)	280	94.2 (91.3-97.1)
Frequency of cigarettes or hookah smoked in a day; median (mean), range								
Cigarettes	384	20 (16.8), 1-60	285	2 (2.8), 1-16	272	20 (23.6), 2-60	280	20 (25), 2-100
Hookah	32	2 (1.5), 1-8	291	1 (1.6), 1-7	103	1 (1.7), 1-7	10	2 (2.6), 1-6

Alcohol use

Few HRDU in Gaza reported ever consuming alcohol whereas 60% in the south and 68% in the north reported ever consuming alcohol (Table 13). Just over one-quarter of HRDU in the middle region had ever consumed alcohol. Among those who ever consumed alcohol, roughly one-third of HRDU in the south and north, and 46% in the middle region, reported consuming alcohol two to three times a week. The median age for initiation of alcohol consumption was 16 in the north, 17 in the south and the middle region, and 19 in Gaza.

Table 13. Alcohol use, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Ever consumed alcohol								
	14	3.2 (1.6-4.8)	119	60.2 (54.0-66.5)	218	68.2 (61.7- 74.9)	80	26.5 (21.3-31.6)
Frequency of drinking alcohol								
Monthly or less	7	48.9 (20.7-76.9)	22	18.8 (10-27.6)	35	18.1 (12.8-23.4)	15	18.3 (0-39.0)
2-4 times/month	1	5.7 (0-15.1)	44	37.2 (26.0,48.4)	68	32.2 (26.1-38.3)	16	19.7 (9.1-30.5)
2-3 times/week	2	15.1 (0-33.9)	38	33 (21.3-44.7)	79	35.3 (28.9-41.7)	38	46.3 (27.9-64.6)
4 + times/week	3	30.3 (2.2-58.7)	14	11 (5.6-16.3)	36	14.4 (9.4-19.4)	11	15.6 (5.4-25.7)
Age at first alcohol consumption; Median (mean), range								
	14	19 (19.1), 13-26	119	17 (17.7), 10-47	217	16 (16.9), 10-60	80	17 (17.5), 9-40

Stopping alcohol use and problem drinking

Among those who reported drinking six or more drinks in one sitting, 25% in south, 45% in the north, and 12% in the middle region reported never attempting to give up alcohol at all in the previous year. Between 27% and 33.4% of the respondents in all areas had tried to give up drinking monthly or more than weekly in the previous year. Almost one-third of HRDU who drank alcohol in the north and middle region, and 41% in the south, reported failing to perform tasks expected of them monthly or more than weekly due to drink during the previous year. The majority of HRDU in all areas experienced being unable to remember incidents due to drinking in the previous year. Fifty-one percent of HRDU in the south and 73% in the north reported having concerns raised about drinking by relatives, friends, doctors or health care workers in the previous year.

Sexual practices

Between 59% in the middle region and 71% in the north had ever had sexual intercourse (Table 14). The median ages for initiation of sexual intercourse ranged from 18 years in the north to 22 years in Gaza. Of those who had ever had sexual intercourse, the majority of incidents had been in the previous 12 months ($\geq 87\%$), among which HRDU in Gaza, the north and middle region reported having a median of one sexual partner in the previous 12 months. HRDU in the south reported having a median of five sexual partners in the previous 12 months.

Of those who reported having sexual intercourse in the past year, the majority (64% in the north to 90% in the middle region) reported having sexual intercourse in the past month: of these, between 26% and 33% in the West Bank and only 8% in Gaza reported using a condom during their last sexual intercourse. Actually, as mentioned previously, only 4-16% reported receiving free condoms in the past 12 months. The majority of HRDU reported having a regular sexual partner in the past year. However, in the West Bank, between 14% in the south and 20% in the north reported having casual sexual partners in the previous year.

Table 14. Sexual practices among HRDU, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Ever had sexual intercourse								
	255	63.3 (58.0-68.7)	189	62.7 (55.8-69.7)	213	70.8 (65.1-76.5)	178	59.1 (53.3-64.9)
Age of first sexual intercourse: median (mean), range								
	254	22 (21.7), 14-32	189	19 (19.5), 14-38	212	18 (18.9), 13-45	178	20 (21.8), 13-45
Had sexual intercourse in past 12 months								
	228	89.8 (86.5-93.1)	169	90.1 (85.5-94.7)	182	86.6 (82.3-90.9)	159	90.2 (86.2-94.2)
Number of sex partners in past 12 months: median (mean), range								
	228	1 (1.1), 1-30	166	5 (4.4), 1-14	182	1 (3.6), 1-13	159	1 (1.7), 1-25
Had sexual intercourse in past month								
	218	85.4 (81.3-89.3)	137	72.5 (65.0-80.0)	135	64.2 (57.3-71)	154	90.0 (85.4-95.6)
Used condom during last sexual intercourse								
	16	7.9 (3.8-12)	35	29.2 (20.3-38.2)	46	33.4 (22-44.8)	42	26 (19.5-32.6)
Last type of sexual partner in past year								
Regular	238	93.4 (90.5-96.2)	149	80.0 (73.7-86.4)	129	62.8 (55.4-70.2)	140	80.3 (74.3-86.3)
Casual	15	6.0 (3.2-8.8)	26	13.9 (8.6-19.1)	42	20.2 (13.8-26.7)	32	18.2 (12.2-24.3)
Stranger	2	0.6 (0-1.4)	7	3.4 (1.3-5.4)	13	5.4 (2.4-8.4)	1	0.6 (0-1.7)
Paid	0	--	4	2.2 (0.1-4.3)	20	8.9 (4.9-12.7)	2	0.9 (0-2.4)
Paying	0	--	1	0.5 (-0.6-1.6)	7	2.7 (0.8-4.6)	0	--

Just over half of HRDU in the middle region (n=99/177), 37% in the south (19/64), 35% (83/213) in the north, and only 4% (12/255) in Gaza reported ever having anal sex. Of these, only 17% (2/12) in Gaza, 35% in the south (19/64), 46% in the north (39/83), and 24% in the middle region (24/99) used condoms during their last act of anal sex.

Of those who had ever had sexual intercourse, a small proportion of HRDU reported ever receiving payment such as money, goods or drugs for sex (Gaza 19% [50/255], south 10% [19/187], north 16% [40/211], middle 6.6% [9/175]). Paying for sex in the past year was reported in Gaza by 2% (7/255), in the south by 21% [33/188], in the north by 25% (67/212), and in the middle region by 7% (9/175) of HRDU. Of those who paid money, goods or drugs for sex, the use of a condom was reported most by HRDU in the middle region (55% [6/12]), followed by the south (41% [12/29]), north (40% [22/55]) and Gaza (34% [3/8]).

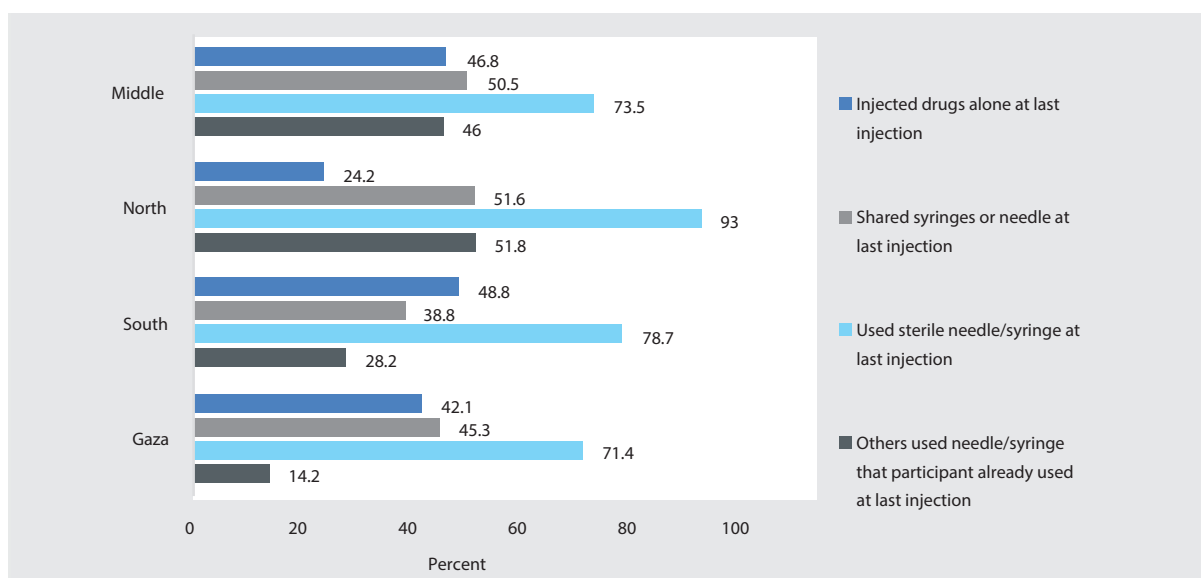
Risk behaviors associated with injection drug use

Sharing practices at last injection

Among the few (10 in Gaza, 25 in south and north, and 28 in the middle of the West Bank) who reported ever injecting drugs, less than half reported injecting drugs alone at the last injection (Figure 15). Except for the south, almost half of IDU reported sharing syringes or needles on the last occasion that they injected. Furthermore, almost one in 2 in the north (54%, 9/25), middle (52%, 12/28), and 40% in Gaza (40%, 4/10) and the south (40%, 10/25), reported sharing equipment such as tourniquets, filters, and heating equipment.

The majority of those who reported ever injecting drugs reported that they had used a sterile needle or syringe during their last injection. Roughly half of those who ever injected drugs in the north and middle reported that others used needles or syringes that they had already used at the last injection. Of those who had injected drugs in the previous week, 5/25 in the south, 4/25 in the north, and 9/28 HRDU reported sharing needles/syringes on that occasion (Annex 8).

Figure 15. Sharing practices at last injection among those who ever injected drugs, Palestine, 2017



Cleaning needles or syringes

Of those who ever injected drugs, over half of HRDU in the south (12/25), 34% (4/28) in the middle, 31% (6/25) in the north, and only 15% (1/10) in Gaza reported trying to clean or disinfect their needle and/or syringe after their last injection (Annex 9). Of these, the largest percentage in the south reported using citric acid (33%, 4/12), in the north (37%, 2/6) reported using boiling water, and in the middle region, 4 used cold water, warm water, soap, and citric acid. No one reported using bleach to clean their needle and/or syringe.

The locations most cited by HRDU in the West Bank for obtaining needles and/or syringes in the previous month were pharmacies and hospitals. No one reported obtaining needles and/or syringes from Palestinian government institutions. Only one person in the south and one in the middle region reported obtaining them from NGOs and Israeli government institutions respectively.

Discussion

Extent of illicit drug use in Palestine

The study found that drug use is not confined to specific areas or localities within Palestine, but is widely distributed across the West Bank and Gaza Strip. Based on the data, it is estimated that there are 26,500 high risk drug users (HRDU) in Palestine, comprising 1.8% of the male population aged 15 and above. Based on UNODC drugs expert (Dr Kamran Niaz /Vienna), the estimated prevalence of HRDU in Palestine is of concern and requires immediate action, especially in light of the inadequacies and shortages of effective and affordable treatment services in Palestine. It is worth noting that the estimated prevalence of ever drug use is much higher than the Global prevalence, where 5% of people between the ages of 15 and 64 years, used drugs at least once in 2015 based on UNODC Global Report 2017 [1].

The majority of study participants, with the exception of the south (64% used non-injection drugs only 1 to 3 times in the past week) and north (61% used non-injection drugs only 1 to 3 times in the past week), took drugs daily or almost daily. This survey found that drug use is not confined to specific areas or localities within Palestine but is widely distributed across the West Bank and Gaza Strip. HRDU also reported buying drugs in several governorates.

PWUD in the West Bank reported high use of synthetic marijuana, but the urine test does not detect synthetic marijuana. As a result, only those who reported using synthetic marijuana in conjunction with another drug other than hashish/marijuana were eligible to participate in the study. This survey sampled only male participants based on findings from formative research indicating that females are not connected socially to males and/or to other females who use drugs. The inclusion of females may have resulted in bottlenecks (unconnected sub-groups of females) and high heterophily (non-random recruitment between females) in the sample. Overall, females who use drugs are understudied even though they are estimated to make up roughly 13% of drug users worldwide and require different treatment modalities than males [20]. In-depth qualitative research or a special survey targeting females who use drugs may be warranted.

Age at initiation of drug use

A large proportion of the HRDU used hashish/marijuana or other non-injection drugs when they were 17 years or younger. Early initiation of drug use is not unusual in many countries [21]. For instance, according to the 2013 National Survey on Drug Use and Health conducted in the USA, over half of the participants (54%) were under 18 years of age when they initiated illicit drug use [22]. A 2009 study of 2,091 men who injected drugs across Iran reported a mean age of initiation into any drug use of 18.6 (+/- 5.4) [23], and a 2006 survey of people who injected drugs in Egypt found that 59% of those reached through outreach began taking drugs between the ages of 15 and 19 [24]. The median age of first non-injection drug use in this survey ranged from 18.8 to 20.9 years, with the youngest ages being around 10 years old. This was higher than indicated in an earlier study in the West Bank and Gaza where the average age at first use of different forms of drugs ranged from 12.8 to 14.7 years for boys [25].

Of the few PWID in this survey, 60% in the north reported initiating injection drug use below the age of 18. Sharing needles with others when injecting drugs increases the risk of HIV and hepatitis. A 2009 study of 2,091 men who injected drugs across Iran reported a mean age of

initiation into injecting of 25.9 (+/- 6.7 years) [23]; a 2015 survey of PWID in Morocco found the median age of initiation to injecting to be 20 years [26]; and a survey of PWID in East Jerusalem governorate in 2010 found the median age of initiation to injecting to be 29 years [18].

Given that drug use starts at a young age and that most HRDU reported ever attending school, with the majority reporting attendance at primary and secondary schools, the risks of drug use should be incorporated into the school curricula in a serious manner. Education programs should target younger populations and young people should be screened and provided education during medical visits. Rapid assessments should be conducted in Palestine to assess the situation and service needs of younger populations, plus the estimated cost of these services. Policies should be designed to ensure appropriate representation of young people who use drugs and adequate funding to research and map drug-related risks among people under the age of 18 [21]. Furthermore, age restrictions on harm reduction services (where they already exist) should be lifted to allow for age-related data collection and access to existing services. Finally, clarification of the legal status of drug use among young people is needed to ensure support for harm reduction interventions [21].

High consumption of different types of drugs

The types of drug and quantities consumed differed by region. Although the urinalysis does not test for all possible drugs, urine screening found that 53% of HRDU in Gaza, 94% in the south, 63% in the north, and 89% in the middle region had more than one drug in their system. Many HRDU were found to be taking drugs that are normally prescribed by a physician. Based on self-reporting, almost all HRDU in Gaza (99%) used Tramadol (verified through urine analysis) and Lyrica (54%) in the previous month. Although Tramadol and Lyrica are not considered to have the same risk of addiction as other narcotics, they are still addictive when used frequently and in high doses [21]. Based on the urinalysis, PWUD in the south (64%) and the north (74%) of the West Bank were found to have benzodiazepines in their system. In the middle region, 96% were found to have tricyclic antidepressants (96%) in their system, although low percentages of HRDU self-reported using these types of drug in the previous week. Further research is needed to ascertain the quantity and frequency of usage, and the initiation of usage for each type of specific prescription drug identified in this survey to determine the extent of abuse.

The majority of HRDU in the south (88%), north (83%), and middle region (65%) reported using synthetic marijuana. Although synthetic marijuana use could not be verified by urinalysis, its use has been increasing rapidly, especially among teenagers and young adults based on survey data and drug seizures [1, 27]. Synthetic marijuana is a dangerous mixture of psycho-active chemicals sprayed onto dried herbs and plants that can be smoked. It mimics the appearance and some of the effects of cannabis. Although synthetic marijuana has been mistakenly linked to cannabis, it is often easier to obtain, less expensive, and far more dangerous, causing more severe adverse health effects and dependence than cannabis [21, 27, 28]. Little information is available about the overall global and regional use of synthetic marijuana products, many of which are composed of different substances. It is estimated that less than 1% of the general population, between 2-10% of students, and 10% of groups with high rates of drug use actually use synthetic marijuana [27]. Education about the negative effects of synthetic marijuana use is essential in school settings and high-risk communities to prevent initiation. Limited guidance is available at present on the treatment of problematic use and withdrawal symptoms of synthetic marijuana. Controlled studies to outline and develop effective treatment strategies for risks associated with acute and chronic use are needed [29].

Polydrug use

The criteria for eligibility only included individuals whose urine analysis verified that they were taking at least one drug other than non-synthetic marijuana or hashish. Generally, polydrug use refers to the combined use of two or more psychoactive drugs, including alcohol, to achieve a particular effect [30].

Surveys using different measurements of polydrug use have linked it to heightened psychological distress among adolescents [31]. Surveys conducted in Europe have found that the use of multiple drugs simultaneously can increase risk-taking behaviors, accidents and fatal and non-fatal overdoses, hepatotoxicity, especially in combination with hepatitis C infection, and unsuccessful outcomes of treatment efforts [32]. Flexible treatment modalities that involve internationally accepted detoxification and diagnosis, and treatment of co-morbidities such as mental health disorders [30, 33], are needed to address all of the specific types of drug taken by PWUD in Palestine.

High marijuana and hashish use

The survey found a high prevalence of HRDU reporting ever (>70%) and past month ($\geq 74\%$, among those who ever used) marijuana and hashish use in all areas surveyed in Palestine. Only HRDU in the south were found to have a high prevalence (75%) of tetrahydrocannabinol (i.e., cannabinoids) in their systems at the time of the survey. This might indicate that HRDU in Gaza, the north, and the middle region are not frequent users of cannabis given that frequent users would show positive in a urine test for 15 or more days [34]. Cannabis remains the world's most widely used drug, with an estimated 183 million people (3.8% of the global population) having used the drug in 2014 [1]. Marijuana dependence affects less than 1% of the global population, although higher rates of marijuana dependence of 1 to 2% have been found in high-income countries [35]. This survey did not establish marijuana dependence despite the common use of marijuana among HRDU in Palestine; the majority reported using marijuana six times a week or less. Although the Americas and Africa remain the main markets for marijuana, Europe, North Africa, and the Near and Middle East remain the main markets for hashish, cannabis use has remained relatively stable in countries where data are available [35]. There is some evidence that high levels of cannabis smoking are associated with limited cognitive impairment, mental disorders, and adverse physical health outcomes, and that regular cannabis use in adolescence and young childhood may increase the risk of initiating illicit drug use [35]. Cannabis has also been shown to have positive or palliative effects and is used in some countries to alleviate medical ailments [35].

Many HRDU have been arrested

A high percentage of HRDU had been arrested for drug use, especially in Gaza. Most HRDU reported receiving no treatment services while in prison. Prison settings provide an excellent opportunity for treatment of drug use. It is essential that efforts are made by the government and prison authorities to scale-up drug dependence treatment options for prisoners with problematic drug use. Recreational and educational opportunities encourage rehabilitation and provide prisoners with activities other than drug use. It is of utmost importance that Palestine promote an effective human rights-based criminal justice response to drug problems by moving away from laws and policies that are harmful to PWUD and by increasing investment in harm reduction [36].

Few HRDU have sought treatment for non-injection drug use

Most HRDU in all areas have never sought treatment for their non-injection drug use. Based on the findings of a formative research among people who use drugs, fear of arrest, incarceration and stigma may hinder HRDU from seeking treatment. Low-cost and HRDU-friendly services that provide appropriate counseling and social protection are essential in Palestine. Addressing barriers to healthcare access such as lack of awareness about treatment, ineffective treatment modalities, and inadequate treatment options is essential. There are scientifically proven models to treat different types of drug use. For instance, disorders related to opioid use usually require pharmacologically assisted treatment, whereas drugs such as stimulants and cannabis require psychosocial and behavioral treatments [1]. Policymakers and practitioners in Palestine must be attuned to the emerging trends in drug use and be able to detect and diagnose the wide range of substances being used. In addition, sufficient funding is needed to ensure that the most effective medications and treatment algorithms are obtainable.

Alcohol use

Frequent alcohol use was low among HRDU in Gaza, most likely due to the criminalization of alcohol use or possession in the Gaza Strip. By contrast, 60% in the south, 68% in the north, and 27% in the middle region reported ever consuming alcohol. Of these, a sizable proportion reported having three or four drinks on a typical day of drinking. Although there are no specific data on alcohol use among the general public in Palestine, alcohol consumption is generally low in Muslim countries [37]. HRDU in the West Bank should be screened for alcohol abuse and offered effective treatment options. Any efforts to set up rehabilitation and treatment services for drug use should also integrate alcohol abuse treatment services.

The lives of HRDU and family members are affected by drug use

With the exception of PWUD in the middle region (52%), the majority stated that they could stop using non-injection drugs when they wanted; around half reported health problems as a consequence of non-injection drug use. Between 60 and 77% reported neglecting their family because of drug use and between 45% and 79% reported that their family complained of their non-injection drug use. Treatment and counseling programs should not only provide a mix of services to HRDU, but also to their family members. Family members of PWUD also reported during the formative research that they were in need of counseling.

Injection drug use: cleaning needles and syringes with substances other than bleach

The use of injection drugs was found to be low in this survey of drug users. Many of those who inject shared with others and did not clean their needles and syringes properly. The sharing of needles and syringes is an extremely effective way to transmit HIV and hepatitis. People who inject drugs should have access to clean needles and syringes and should be educated on how to clean needles. Pharmacies should be informed of the importance of allowing people who inject drugs to have access to clean injecting equipment. Stakeholders should provide education and intervention outreach to those who inject. Finally, effective treatment programs are essential to treat those who inject drugs.

Limited treatment options, especially from Non-Governmental Organizations (NGOs)

Few HRDU have ever sought services for non-injection drug use. Similarly, among those reporting that they ever injected drugs, few knew of NGOs that assist people who inject drugs and that provide HIV information in their home city. Given the high prevalence of drug use, friendly, quality and affordable services for drug users should be strengthened and scaled up in areas that are accessible to HRDU.

Low condom use

A sizable proportion of HRDU reported having multiple sexual partners. However, the prevalence of condom use in all areas, especially in Gaza, was low during vaginal and anal sex. Low condom use and multiple sexual partners greatly increase the risk of HIV and sexually transmitted infections and should be monitored.

Few HRDU know where to get tested or have been tested for HIV

Low percentages of HRDU know where to obtain an HIV test, and only 5% in Gaza and the south, 7% in north, and 23% in the middle region reported ever having an HIV test. The percentage of PWUD who seek HIV testing and counseling (HTC) could be encouraged by increasing awareness about the importance of being tested, the availability of HIV testing locations, and promoting existing services, with additional training for counselors on how to receive and provide quality HTC services for PWUD, and greater PWUD-friendly HTC settings.

No HIV infection

No HRDU in the study were found to have HIV. Other than drugs like methamphetamine or cocaine that are known to alter judgment, lower inhibitions, and impair decisions about sex or other drug use, the use of drugs that are not injected does not provide many opportunities for HIV infection. However, this survey found that drug users practice high-risk sexual behaviors, including sex with different partner types and inconsistent condom usage, which increases the HIV risk. Continued encouragement of HIV testing and programs educating PWUD about safe sex practices are needed to ensure that HIV does not expand in these populations.

Hepatitis B and C infection

With the exception of the north, hepatitis C infection was slightly higher than hepatitis B infection among HRDU. Hepatitis C infection was especially high in the middle region. Both types of hepatitis are extremely infectious and drug and alcohol use places individuals at a higher risk of contracting hepatitis [38]. Hepatitis C is mostly contracted through injection drug use, which was found to be low. Engagement in risky sexual behavior that often accompanies drug use places individuals at risk of contracting HBV, and less frequently, HCV. Screening of PWUD and those who have multiple sex partners should be expanded.

Recommendations

Prevention of substance use [39]

- Enhance youth programs to include healthy lifestyle choices and support for young people who may be vulnerable to drug use. One of the interventions is to develop and improve recreational facilities and provide access for children and youth to regular sports and cultural activities.
- Increase education about the risks of drug use, HIV, and hepatitis for young people, and ensure harm reduction and outreach programs for young people.
- Develop programs that have socio-psychological components to deal with the root causes of problem drug use.
- Introduce rehabilitation services in prison that include vocational training to help former PWUD reintegrate into society, find employment, and remain healthy and drug-free once they are released.
- Provide post-treatment rehabilitation supervision and social integration services.
- Enhance cooperation between public health, education and law enforcement authorities when developing prevention initiatives

Support for families of drug users

- Support PWUDs and their families with social services, health insurance (especially for children), and food stamps to help them survive.
- Develop comprehensive, confidential and affordable counseling programs for families of PWUDs (legal, psychosocial and health) to help them deal with a family member on drugs.
- Awareness programs about the services available to PWUD and their families.

Harm reduction or prevention treatment and care of health consequences of drug use

- Increase outreach efforts/policy changes, including reducing the stigma and discrimination related to PWUD.
- Take advantage of the fact that PWUD and HRDU constitute a large social network (confirmed by the effective recruitment of HRDU in this study) to deliver prevention through peer-driven intervention modalities, including overdose prevention.
- Investigate and implement best practice for PWUD-targeted programs to provide STI including HIV and harm reduction education, effective drug treatment and maintenance modalities, condom distribution, and easy access to needles to reduce the spread of infections.
- Educate health staff to improve prevention services that target high-risk populations, especially PWUD.
- Educate pharmacists on the needs of PWUD; allow PWUD to access clean syringes at pharmacies.

- Provide free health services for PWUDs and their families that provide confidential and regular medical tests and checkups.
- Promote an effective human rights-based criminal justice response to drug problems and focus more on harm reduction rather than punishment.
- Provide adequate treatment and counseling in prison settings.

Treatment and care of people suffering from drug use disorders

- Scale-up or initiate effective treatment programs that are friendly and affordable to PWUD and HRDU and can cater to different types of drug dependency issues.
- For both those who use and inject drugs, improve any existing treatment programs and enhance outreach programs.
- For those who are using or injecting opioids, expand opioid substitution therapy (OST), harm reduction, including needle and syringe exchange programs, and effective treatment programs.
- Educate and ensure that treatment providers are provided with the most effective medications and treatment modalities for specific drug types.
- Involve families in the treatment and recovery of problem drug users.
- Scale-up or initiate effective treatment programs that are friendly and affordable to PWUD and HRDU and can cater to different types of drug dependency issues.
- Educate and ensure that treatment providers are provided with the most effective medications and treatment modalities for specific drug types.
- Monitor and evaluate the effectiveness and efficacy of existing treatment centers
- Initiate female-friendly wellbeing centers, a greater number of female social workers and counselors, safe homes for current and former female drug users, and legal support to protect women from abuse by partners who use drugs.

Developing a drug use monitoring system

- Conduct future surveys using the same sampling method and eligibility to monitor changes in drug use behaviors and HIV or other infections, and to monitor the impact of interventions.
- Conduct research to understand more about prescription drug use, including if many users are on a prescription or are taking these medications without the supervision of a medical professional.

Annex 1: Study procedures

Survey design

The survey used respondent-driven sampling (RDS) to sample HRDU. RDS [40] is a peer recruitment chain referral and analysis method used to recruit members of hidden population groups. RDS is a probability based sampling method; it includes an analysis process to adjust for social network sizes (number of peers known to participants) and differential recruitment. RDS relies on the population group being well-networked to allow participants to recruit peers. RDS started by choosing 'seeds' (eligible participants) who started the chains of recruitment among their social networks. We recruited four seeds to start the recruitment process in both Gaza and Hebron, and three seeds for the Shufat and Nablus study sites. Seeds were selected based on their ability to recruit peers who fulfilled a variety of different characteristics, including educational status, age, type of drug used, whether they injected drugs or not, and residential location.

Following participation in the study, seeds were trained to recruit up to three of their peers using unique identification coupons. Recruited peers enrolled in the survey then recruited up to three of their peers, with this process continuing until the calculated sample size was achieved. A primary and secondary payment system was used to remunerate participants for enrolment in the survey, for completing the survey steps (primary), and then for successfully recruiting eligible participants (secondary). Peers recruited by the seeds who enrolled in and completed the survey steps were considered the first wave of respondents. Successive waves of recruitment continued until the sample size was achieved.

Sample size calculations

The formula used to calculate the sample sizes (N) for each location was as follows:

$$N = D Z^2 \frac{1-\alpha}{P(1-P)} / d^2$$

Where:

n = Sample size required per survey round

D = Design effect

Z_{1- α} = The z score for the desired confidence level, usually 1.96 for 95% confidence

P = Expected proportion

d = Precision (set at 5%)

The calculation assumes the following: D=5 for the West Bank, D=3 for Gaza, and D=2 for Jerusalem; and Z=1.96, based on previous surveys; P=0.032 for the West Bank, P=0.128 for Jerusalem and the P for Gaza was estimated in between that of the West Bank and Jerusalem, 0.08. The final sample sizes were calculated as:

$$\text{West Bank: } N = 5 (1.96)^2 \times 0.032 \times 0.968 / 0.0025 = 238$$

$$\text{Jerusalem: } N = 2 (1.96)^2 \times 0.128 \times 0.875 / 0.0025 = 344$$

$$\text{Gaza: } N = 3 (1.96)^2 \times 0.08 \times 0.92 / 0.0025 = 339$$

Based on these estimates, the minimum total sample size was 921. However, given the opportunity to sample a higher number, this study recruited 1300 participants, resulting in sample sizes of 900 from the West Bank, including Jerusalem, and 400 from the Gaza Strip.

Study procedures

1. *Data collection*

Seeds and subsequent participants received up to three referral coupons, each with a unique number, for the recruitment of peers (eligible individuals) into the survey. Individuals who attended the study site presented a valid referral coupon and underwent a screening process administered by the screener. This screening included a standard set of questions and a urine test to determine if the candidate had at least one drug in their system (Annex 2). Data were collected anonymously to encourage participation. Oral informed consent was taken following a description of the study to participants. Screening also included asking each participant to assess the extent of their personal network by responding to the following question: How many males does the participant know personally, who have used at least one drug other than non-synthetic hashish/marijuana in the previous week, who are aged 15 years or older, who live in the area where the survey is being conducted, and has been seen by the participant in the past two weeks? This question was used to weigh the final data during analysis.

Once enrolled, respondents provided a blood specimen to be tested for HIV, hepatitis B and C, and completed a face-to-face interview with questions about their socio-demographic background, alcohol use, illicit drug use, sexual risk behaviors, attempts to quit drugs, awareness of available services, and HIV testing (Annex 3). The interview also included questions about visits made by HRDU to rehabilitation centers or being imprisoned. A red card with a map of Palestine was distributed to HRDU two weeks preceding the survey (Figure 16).

Figure 16: Unique object card



Once the interview was completed, respondents were then invited to recruit other eligible males into the survey. Those who agreed were given instructions and up to three uniquely numbered coupons to use to recruit their peers. Participants were informed that they could earn reimbursement for each eligible peer that they recruited, and who enrolled in and completed the survey process. Participants were then provided with reimbursement for their time and effort for participating in the survey and offered their test results with post-test counseling directly before leaving the study site. Those who had positive test results were referred to the nearest Ministry of Health primary health care center for follow-up.

2. *Urine testing procedures*

As part of the screening, each candidate presenting a valid coupon and completing the screening process had a urine test using Abon by Alere from the USA to determine if there was at least one drug, other than hashish and synthetic marijuana, in their system. The kit tests for 10 drugs (Annex 2), in addition to the Arco Biotech kit to screen for Tramadol. No personal information was attached to the test results. Test results were linked to the participant using a unique coupon number.

3. *Laboratory procedures*

All biological tests were performed at the study sites in both the West Bank and Gaza Strip. Five milliliters (5 ml) of whole blood were drawn from each respondent by venipuncture into ethylenediamine tetraacetic (EDTA) anti-coagulant tubes. Blood collected in tubes was mixed immediately and then centrifuged. We also used Besure, USA for a rapid HIV test, and a hepatitis B and hepatitis C kit. Hepatitis B and C and HIV tests were processed by lab technicians from the Ministry of Health.

4. *Questionnaire design and administration*

The questionnaire was based on the WHO RDS [40] tool and other standard behavioral surveys adapted from other settings. International indicators and formative research were incorporated in each of the survey areas. Questionnaires were administered through face-to-face interviews by trained interviewers in Arabic.

5. *Reimbursement*

Participants recruited through RDS received 50 NIS for completion of the survey and an additional 20 NIS for every successfully recruited peer who was eligible and completed the study procedures, up to a maximum of three recruited participants.

Data management and analysis

Microsoft Excel spreadsheets were used to monitor recruitment progress and track coupon numbers during data collection. Access™ was used to enter data from the screening tool, the behavioral survey, and the results of biological tests.

Diagnostics (recruitment trees, bottleneck and convergence plots) were conducted on key variables to detect extreme biases visually. Univariate analysis was conducted using the successive sampling method in RDS Analyst [41]. Self-reported social network sizes were used to produce weights for deriving estimates whereby those with larger social network sizes were given less weight than those with smaller social network sizes. Given that some network sizes were missing, the visibility imputation method was used to improve network size accuracy [42].

Population size estimation

In addition to RDS, the extent of HRDU was estimated using a household survey of illicit drug use among youths aged 15-24 in the West Bank [43], and two types of multiplier methods: the unique object (red card) and the service multiplier [44]. Both methods involved overlapping independent population counts to extrapolate the overall population size.

For the unique object multiplier, the number of red cards distributed were counted (first multiplier) and used in a calculation with the proportion of HRDUs who reported receiving the object (second multiplier) to derive population estimation. The service multiplier used service data consisting of the unique counts of HRDU who reported visiting the methadone centre in the West Bank during the six months prior to initiating the RDS study (from June 1, 2016 to December 30, 2016), and those who reported being imprisoned for illicit drug use at least once during these same dates.

Multiplier Calculation

The number of HRDU who received a unique object one week prior to the start of the survey was used as a numerator (M) and those who reported receiving a unique object prior to the start of the survey constituted the denominator (P). The mathematical formula to calculate the total size of the population was:

$$N = M/P$$

Where:

N=Estimated Size

P=Proportion of HRDU in survey who reported receiving the unique object.

M=Number of HRDU to whom the unique object was distributed.

Confidence intervals for the multiplier method

The following formula was used to calculate the 95% confidence bounds around the population size estimates:

Where:

N=Population size estimates

M=Number of HRDU who received a unique object.

E(P)=Proportion of HRDU in the survey who reported receiving a unique object.

E(M)=The anticipated number of HRDU who could receive a unique object.

Var(M)=As M, the number of HRDU who received a unique object, Var(M) is equal to M.

Var(P)=The variance of the overlap of HRDU who received the object and who reported receiving the object (SE^2) extracted from the RDSAT output.

The assumptions for calculating the confidence bounds are:

- N and P are two independent variables (Covariance = 0)
- P has an approximate normal distribution with the standard error equal to SE. The RDSAT output for the SE for P comes from the bootstrap percentile method¹⁵ and may be asymmetric.
- P has a small coefficient of variation.

15 UNAIDS. Guidelines on Estimating the Size of Populations Most at Risk of HIV. Accessed on August 15, 2012 at: whqlibdoc.who.int/publications/2010/9789241599580_eng.pdf.

Annex 2. Drug User: Screening Form

INSTRUCTIONS: The SCREENER will complete this entire screening questionnaire for every candidate that attends the study site for visit #1.

"Hello. My name is _____. I would like to thank you for taking the time to participate in the study. Before we start the study, I need first to find out if you are eligible to participate. As part of the screening, we will ask you to take a urine test to detect drugs in your system. If you are eligible to participate, then I will explain the study in more detail. Everything you tell us will be confidential and no one is able to link your results and responses to you personally. May I start?"

1. Date (DD-MM-YY)		
2. Coupon Number		
3. Is this person a seed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	IF YES → Skip Q6
4. Does the candidate have a valid coupon?	<input type="checkbox"/> Yes <input type="checkbox"/> No	IF NO → Ineligible
5. In which city do you live currently?	One of the survey cities? <input type="checkbox"/> Yes <input type="checkbox"/> No	IF NO → Ineligible
6. Have you participated in this study before?	<input type="checkbox"/> Yes <input type="checkbox"/> No	IF YES → Ineligible
7. How old are you now? Age in completed years	15 or Over? <input type="checkbox"/> Yes <input type="checkbox"/> No	If <15 years → Ineligible
8. When was the last time you took illicit drugs?		IF less than 7 days → Ineligible
9. What type of drugs did you take in the past six months?	<input type="checkbox"/> Injecting drug use <input type="checkbox"/> Opiates (heroin, morphine, codeine, methadone) <input type="checkbox"/> Cocaine-type drugs (cocaine, crack) <input type="checkbox"/> Amphetamine-type drugs (am/dextro/metham-phetamine, methylphenidate) <input type="checkbox"/> Sedatives <input type="checkbox"/> Hypnotics <input type="checkbox"/> Anxiolytics (benzodiazepines, barbiturates) <input type="checkbox"/> Hallucinogens (LSD, mescaline, ecstasy, psilocybin, DMT), <input type="checkbox"/> Phencyclidine (PCP, ketamine) <input type="checkbox"/> Inhalants <input type="checkbox"/> Synthetic cannabinoids (Spice)	Needs to have taken at least one illicit other than hashish or synthetic cannabinoids IF NO → Ineligible

"We will ask you to urinate in this cup so that we can see which drugs are in your system. Your results will be confidential and no one is able to link your results to you personally. I am putting your coupon number on the cup. Do you agree to provide us with a sample of your urine? Yes _____ No _____ (if no, then kindly ask the person to leave since they are not eligible). Once you are finished, please give this cup to the lab technician and return to me to complete the screening process."

“Thank you for providing us with a sample. We should have the results in a few minutes. In the meantime, I will ask you a few more questions about your recruitment.”

10. Do you agree to supply us with a urine sample?	<input type="checkbox"/> Yes <input type="checkbox"/> No	IF NO → Ineligible
11. Remember that your response is confidential and the person who gave you the coupon will not know your response. Did anyone force you to participate in this study against your will?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No response	IF YES → Ineligible
12. How did you get this coupon?	<input type="checkbox"/> From someone I know <input type="checkbox"/> Found it/bought it/traded it	IF Found/Bought → Ineligible
13. I do not want to know the person's name. From whom did you receive this coupon?	<input type="checkbox"/> Friend/acquaintance <input type="checkbox"/> Stranger	IF STRANGER → Ineligible
14. SCREENER: How confident are you about the answers provided by the participant?	<input type="checkbox"/> Confident <input type="checkbox"/> Not confident	Confident → Q15
15. SCREENER: Specify why screener is 'not confident'.	<input type="checkbox"/> Under 15 years <input type="checkbox"/> Not drug user per eligibility <input type="checkbox"/> Doesn't live in survey area <input type="checkbox"/> Other: _____	Additional comments:
16. SCREENER: Is the recruit too high or too drunk to give consent or complete the questionnaire?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Yes → Ineligible
17. SCREENER: Is the recruit mentally impaired and not able to give consent or complete the questionnaire?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Yes → Ineligible
18. SCREENER: Is the participant eligible? (verify with urine screening)	<input type="checkbox"/> Yes <input type="checkbox"/> No	No → Ineligible
NETWORK SIZE QUESTIONS BELOW (RESPONSE CANNOT BE ZERO)		
19. How many people do you know, and who know you, who have used at least two drugs other than hashish/marijuana in the past 30 days?	<input style="width: 150px; height: 25px;" type="text"/>	HELP BY PROBING
20. How many of these people are 15 years of age or older and live in the survey area?	<input style="width: 150px; height: 25px;" type="text"/>	This number should not be more than response to Q 18
21. How many of these people have you seen in the past two weeks?	<input style="width: 150px; height: 25px;" type="text"/>	This number should not be more than response to Q 19
22. Did you receive a red card in the past week?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
23. What was written on it?		
24. In your opinion, how many men are taking drugs other than hashish in your area (north, middle, south)?		

Urine test for illicit drug use

No.	Substance
1	Cocaine
2	Amphetamine
3	Methamphetamine
4	Cannabis
5	Methadone
6	Morphine
7	Phencyclidine
8	Barbiturates
9	Benzodiazepines
10	Tricyclic Antidepressants
11	Tramadol

Annex 3. Study Questionnaire

COUPON NUMBER _____

Survey location: 1= Hebron Shufat =2 Nablus=3

Interviewer _____

Date: _____ Start time: _____

Pre-requisite to questionnaire completion: Statement of consent

To participate in this survey, you have been given information about the purpose, benefits, and risks of this survey by staff and they have answered your questions. You will be asked to answer questions about your health-related risk behaviors.

You can choose whether to participate or not, **orand** to stop the interview at any time. No identifiers will be recorded on questionnaires or biological specimens. Only coupon ID numbers will be used for information in the questionnaires.

Please answer the following question:

- Are you willing to participate in this survey?
 - I am willing to participate in this survey [go to questionnaire]
 - I am not willing to participate in this survey [Thank you for your time.]

SECTION 1. DEMOGRAPHIC CHARACTERISTICS

No.	Question	Response	Answer	Skip
	In which region/country were you born?	1. Gaza-Palestine 2. West Bank-Palestine 3. Jerusalem-Palestine 4. If outside Palestine, Specify _____ Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	What ID do you hold?	Palestinian=1 Israeli=2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	What is your refugee status?	Refugee=1 Non refugee=0 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	

	What type of area do you reside in?	City=1 Village=2 Camp=3 Bedouin=4 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Where do you live?	Jenin=1 Tubas=2 Tulkarem=3 Nablus=4 Qalqyia=5 Salfit=6 Ramallah and al-Bireh=7 Jericho=8 Jerusalem=9 Bethlehem=10 Hebron=11 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Where do you usually buy drugs?	Jenin=1 Tubas=2 Tulkarem=3 Nablus=4 Qalqyia=5 Salfit=6 Ramallah and al-Bireh=7 Jericho=8 Jerusalem=9 Bethlehem=10 Hebron=11 Israel=12 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Where do you usually use drugs?	Jenin=1 Tubas=2 Tulkarem=3 Nablus=4 Qalqyia=5 Salfit=6 Ramallah and al-Bireh=7 Jericho=8 Jerusalem=9 Bethlehem=10 Hebron=11 Israel=12 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	What is your current age?	_____ years Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Did you go to school?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q112 Q112 Q112

	Years of schooling?	_____	<input type="checkbox"/> <input type="checkbox"/>	
		No response 99		
	Are you now in school/college?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	What is your current marital status? (one response only)	Single, in a steady relationship 1 Single, not in steady relationship 2 Engaged 3 Married 4 Separated 5 Divorced 6 Widowed 7 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Where did you live most of the time during the last three months? (do not read the answers) (one response only)	In your owned house (house/apartment of your spouse/partner) 1 In rented house/apartment (house/apartment of your spouse/partner) 2 In parents' house/apartment 3 In someone else's house/apartment (relatives, friends) 4 No permanent location (e.g., street/park/abandoned building) 5 Prison 6 Somewhere else 77 (Where?) _____ Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	What was your main source of income during the last month? (one response only)	No income in last month 1 Permanent employment 2 Temporary job/part-time job 3 Family support 4 Selling drugs 5 Stealing 6 Begging 7 Selling sex 8 Something else 77 (What?) _____ Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	About how much do you earn in a month?	_____ shekel Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Are you currently homeless?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	

SECTION 2. ALCOHOL USE

No.	Question	Response	Answer	Skip
	How often do you have a drink containing alcohol?	Never monthly or less 2-4 times a month 2-3 times a week 4 or more times a week Refused	0 1 2 3 4 88	<input type="checkbox"/> <input type="checkbox"/> Q301
	How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2 3 or 4 5 or 6 7 to 9 10 or more Refused	0 1 2 3 4 88	<input type="checkbox"/> <input type="checkbox"/>
	How often do you have six or more drinks on one occasion?	Never Less than monthly Monthly Weekly Daily or almost daily Refused	0 1 2 3 4 88	<input type="checkbox"/> <input type="checkbox"/> IF 202='0' and 203 = '0' Q301
	During the last year, how often have you found that you were not able to stop drinking once you had started?	Never Less than monthly Monthly Weekly Daily or almost daily Refused	0 1 2 3 4 88	<input type="checkbox"/> <input type="checkbox"/>
	During the last year, how often have you failed to do what was normally expected of you because of drinking?	Never Less than monthly Monthly Weekly Daily or almost daily Refused	0 1 2 3 4 88	<input type="checkbox"/> <input type="checkbox"/>
	During the last year, how often have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never Less than monthly Monthly Weekly Daily or almost daily Refused	0 1 2 3 4 88	<input type="checkbox"/> <input type="checkbox"/>

SECTION 3. HASHISH AND MARIJUANA USE

We will now ask you about your hashish and marijuana use. This does not include synthetic forms such as Spice or Hydo.

No.	Question	Response	Answer	Skip
	Have you ever used hashish or marijuana?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q401
	Have you used hashish or marijuana in the past month?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	How old were you when you started using the drugs hashish/marijuana?	Age_____	<input type="checkbox"/> <input type="checkbox"/>	
	How often do you use hashish or marijuana during a typical week?	Once 1 2-3 times 2 Once a week 3 2-3 times a week 4 4-6 times a week 5 Once a day 6 2-3 times a day 7 4 or more times a day 8 No response 99	<input type="checkbox"/> <input type="checkbox"/>	

SECTION 4. NON-INJECTION USE

Now I am going to ask you questions about your use of drugs other than those prescribed for medical reasons, excluding non-synthetic hashish and marijuana, and alcohol or tobacco. We will first ask you about drugs that you use to GET HIGH that are not injected.

No.	Question	Response	Answer	Skip
	How old were you when you first used non-injection drugs other than hashish/marijuana?	Age_____	<input type="checkbox"/> <input type="checkbox"/>	
	What type of non-injection drug did you first use (other than non-synthetic hashish/marijuana)? (one response only)	Heroin (SMOKING) 1 Opium 2 Methadone 3 Cocaine 4 Crack 5 Codeine 6 Morphine 7 Am/dextroam/meth/methyl phenidate 8 Tramal/Tramadol 9 Inhalants 10 Sedatives 11 Hypnotics 12 Anxiolytics (benzodiazepines, barbiturates) 13 Hallucinogens (LSD, mescaline, ecstasy, psilocybin, DMT) 14 Ketamin 15 Synthetic marijuana/mastaloun (Hydro) 16 Hashish 17 Larica 18 Cough syrup with codeine 19 Crystal 20 Others 77 Specify_____	<input type="checkbox"/> <input type="checkbox"/>	

	<p>What types of non-injection drugs have you used in the past one month (multiple responses possible)?</p>	<p>Heroin (SMOKING) 1 Opium 2 Methadone 3 Cocaine 4 Crack 5 Codeine 6 Morphine 7 Am/dextroam/meth/methyl phenidate 8 Tramal/Tramadol 9 Inhalants 10 Sedatives 11 Hypnotics 12 Anxiolytics (benzodiazepines, barbiturates) 13 Hallucinogens (LSD, mescaline, ecstasy, psilocybin, DMT) 14 Larica 15 Synthetic marijuana/mastaloun (Hydro) 16 Hashish 17 Cough syrup with codeine 18</p>	<p><input type="checkbox"/> <input type="checkbox"/></p>	
	<p>What types of non-injection drugs have you used MOST OFTEN in the past one month (Only one response)?</p>	<p>Heroin (SMOKING) 1 Opium 2 Methadone 3 Cocaine 4 Crack 5 Codeine 6 Morphine 7 Am/dextroam/meth/methyl phenidate 8 Tramal/Tramadol 9 Inhalants 10 Sedatives 11 Hypnotics 12 Anxiolytics (benzodiazepines, barbiturates) 13 Hallucinogens (LSD, mescaline, ecstasy, psilocybin, DMT) 14 Larica 15 Synthetic marijuana/Mastaloun (Hydro) 16 Hashish 17 Cough syrup with codeine 18</p>	<p><input type="checkbox"/> <input type="checkbox"/></p>	
	<p>How frequently did you use drugs during the last week?</p>	<p>Once 1 2-3 times 2 Once a week 3 2-3 times a week 4 4-6 times a week 5 Once a day 6 2-3 times a day 7 4 or more times a day 8 No response 99</p>	<p><input type="checkbox"/> <input type="checkbox"/></p>	
	<p>How many times did you use non-injection drugs yesterday? (ENTER "0" IF PARTICIPANTS DID NOT USE DRUGS YESTERDAY)</p>	<p>_____ time(s)</p>	<p><input type="checkbox"/> <input type="checkbox"/></p>	
	<p>Have you ever sought treatment for non-injecting drug use?</p>	<p>Yes 1 No 2 Don't know 88 No response 99</p>	<p><input type="checkbox"/> <input type="checkbox"/></p>	<p>Q411 Q411 Q411</p>
	<p>When was the last time you sought treatment for non-injecting drug use?</p>	<p>Date_____</p>		
	<p>What kind of treatment (medical/ psychosocial) was it?</p>	<p>Rehabilitation program run by an NGO 1 Rehabilitation program in medical treatment 2 Rehabilitation treatment in prison 3 Detox treatment by my family 4 Self-help (tried on my own) 5 Other (describe) -----77</p>	<p><input type="checkbox"/> <input type="checkbox"/></p>	

	Think about the last time you injected illicit drugs. Did you share a needle or syringe with someone else?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Which injection drugs have you used in the past month?	Morphine 1 Heroin 2 Cocaine 3 Amphetamine 4 Methamphetamine 5 Others 77 List Others ----- -----	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	During the last month, where did you inject drugs? (MULTIPLE ANSWERS ARE POSSIBLE)	At my home 1 In a private house or apartment 2 In a public place, e.g. a bar, shop, toilet 3 In a dealer's house or apartment 4 On the street or in the park 5 In shooting gallery/other place where PWID gather 6 In a prison 7 Somewhere else 77 (Where?) _____ No response 99	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	The last time you injected drugs, did you inject with others?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/>	
	During the last week, from how many different people have you taken used needles and/or syringes to inject yourself with?	_____ ("0" if from nobody; "100" if from MANY)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Skip to Q515 if 0
	Which people did you share needles and/or syringes with for injecting during the last year? (READ OPTIONS; MULTIPLE ANSWERS ARE POSSIBLE)	Did not inject with used needles/syringes 1 Unknown person(s) 2 Friend(s) or acquaintance(s) 3 My sexual partner 4 Family member or a relative 5 Dealer 6 Other 77 (Who?) _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	The last time you injected drugs, did you use a sterile needle and syringe (i.e., a needle and syringe not used before by anyone)?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	The last time you injected drugs, did someone else use the needle and/or syringe that you had already used?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q519 Q519 Q519
	During the last week, which people used the needles and/or syringes that you had already used to inject yourself? (DO NOT READ ANSWERS; MULTIPLE ANSWERS ARE POSSIBLE)	Unknown person(s) 1 Friend(s) or acquaintance(s) 2 My sexual partner 3 Family member or a relative 4 Dealer 5 Other (who?) _____ 77	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	The last time you shared injecting equipment, did you try in any way to clean or disinfect the needle/syringe you used?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q521 Q521 Q521

	How did you try to clean the needle/syringe the last time you shared injecting equipment? (DO NOT READ ANSWERS; MULTIPLE ANSWERS ARE POSSIBLE)	With cold water 1 With warm water 2 With hot water 3 With boiling water 4 With soap or detergent 5 With bleach 6 With alcohol 7 Other 77 (How?) _____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	How often do you use a sterile needle and syringe to inject drugs?	Always (100%) 1 Most of the time (75%) 2 About every second time (50%) 3 Sometimes (25%) 4 Rarely (about 10%) 5 Never or almost never 6	<input type="checkbox"/>	
	From which of the following places have you obtained needles/syringes during the last month? (Multiple answers are allowed)	I buy them in a pharmacy or hospital 1 I buy them on the street 2 I buy them/get them from a dealer 3 I get them from people I inject drugs with 4 Get them from friends or family members who are not drug users 5 Get them from non-governmental organization 6	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Do you know about any organization that helps people who inject drugs and provides information about HIV in your city?	Yes 1 No 2	<input type="checkbox"/>	
	What is the name of the organization/s?	_____		
	Have you used their services during the last year?	Yes 1 No 2	<input type="checkbox"/>	
	Have you ever overdosed to the point of losing consciousness?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Have you ever been treated in a medical center for overdosing?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	How many of the drug users that you know sought help in a treatment center in the past year?	Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	

SECTION 6. EXPERIENCE WITH THE POLICE AND PRISON

Now I am going to ask you questions about your experience with police and prison.

No.	Question	Response		Skip
601	Have you ever been arrested for drug use?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q701 Q701 Q701
602	Were you arrested for drug use between May 15 and Dec 15?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
603	Have you ever been to prison?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q701 Q701 Q701

604	Have you used drugs during your time in prison?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
605	How many of the drug users that you know have been arrested and sent to prison between May 15 and December 15?	_____ Number Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	

SECTION 7. SEXUAL PRACTICES

Now, I would like to ask you some questions about your sexual behavior.

No.	Question	Response	Answer	Skip
	Have you ever had sexual intercourse? (penis in vagina or anus)	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q801 Q801 Q801
	How old were you when you had your first sexual intercourse?	Age_____	<input type="checkbox"/> <input type="checkbox"/>	
	How many persons did you have sex with in the past 12 months?	Number_____	<input type="checkbox"/> <input type="checkbox"/>	
	Did you use a condom the last time you had sexual intercourse?	Do not remember 66 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	Does your regular sex partner (spouse or boy/girlfriend) currently inject drugs?	Yes 1 No 2 No, but she used to inject drugs 3 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	In the last month, did you have sexual intercourse with a non-regular (casual) partner who also injects drugs?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	

SECTION 8. SEXUALLY TRANSMITTED INFECTIONS AND HIV TESTING

Now I am going to ask you questions about your sexually transmitted infections and HIV testing.

No.	Question	Response	Answer	Skip
	In the last 12 months, have you been given free condoms (through an outreach service, drop-in center or sexual health clinic...)?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
	During the last year, have you been diagnosed (a doctor told you that you are infected) with a sexually transmitted infection or an infection spread through sexual intercourse?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q804 Q804 Q804

Were you treated for this infection? (did you take prescription drug)	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
Do you know where you can go if you wish to receive a free and anonymous HIV test?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q806 Q806 Q806
Where can you go if you wish to receive free and anonymous HIV test?	List here----- -----		
Have you ever tested for HIV?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q901 Q901 Q901
Did you receive the results of your most recent (if more than one) HIV test?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	Q901 Q901 Q901
Can you please tell me the results of that last test?	Positive 1 Negative 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
Have you ever tested for hepatitis C?	Yes 1 No 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	
Can you please tell me the results of that last test?	Positive 1 Negative 2 Don't know 88 No response 99	<input type="checkbox"/> <input type="checkbox"/>	

Thank you very much for your time and participation

Annex 4. Characteristics of seeds in the four study sites, Palestine

The tables below display some of the basic characteristics of each HRDU seed from the surveys plus each seed's recruitment effort. The size of the social network for HRDU seeds in Gaza ranged from two to 600, in the south from one to 50, in the north from one to 500, and in the middle region from two to 33. The network sizes for HRDU ranged from five to 50 in Gaza, from three to ten in the south, from two to 20 in the north, and from four to 22 (one of three seed network sizes missing) in the middle region. The age for HRDU seeds ranged from 25 to 53 years in Gaza, from 18 to 53 years in the south, from 20 to 32 years in the north, and from 33 to 52 years in the middle region. The age of first drug use (not including hashish or marijuana) for HRDU seeds ranged from 17 to 23 years in Gaza, from 15 to 27 years in the south, from 17 to 20 years in the north, and from 13 to 18 years in the middle region. In Gaza, seed 3 had the highest number of recruits, producing 29% of the sample. In the south, seeds 1, 2, and 3 produced up to ten waves; seed 4 only produced seven waves but had the highest number of recruits and produced the highest percentage of participants. In the north, seed 3 had the highest number of waves, the highest number of recruits, and produced the highest percentage of participants. In the middle region, seed two had the highest number of recruits and produced 39% of the sample.

Characteristic of seeds (n=4) in Gaza Strip, Palestine

	Network size	Age	Age first use drug*	HIV status	HVC Status	HVB Status	Number of recruits^	Number of waves	Percent of sample^
Seed 1	5	53	17	-	-	+	87	9	22
Seed 2	40	25	17	-	-	-	85	8	21
Seed 3	30	32	23	-	-	-	114	8	29
Seed 4	50	25	17	-	-	-	110	9	28

*Non-injection drugs other than hashish/marijuana

^Not including seeds

Characteristics of seeds (n=4) in the south, Palestine

	Network size	Age	Age first use drug*	HIV status	HVC Status	HVB Status	Number of recruits^	Number of waves	Percent of sample^
Seed 1	10	40	15	-	-	-	49	10	17
Seed 2	3	51	27	-	-	+	59	10	20
Seed 3	10	53	17	-	-	-	89	10	30
Seed 4	3	18	16	-	-	-	98	7	33

*Non-injection drugs other than hashish/marijuana

^Not including seeds

Characteristics of seeds (n=3) in the north, Palestine

	Network size	Age	Age first use drug*	HIV status	HVC Status	HVB Status	Number of recruits^	Number of waves	Percent of sample^
Seed 1	2	32	20	-	-	-	20	4	7
Seed 2	8	29	17	-	-	-	96	11	32
Seed 3	20	20	18	-	-	-	181	13	61

*Non-injection drugs other than hashish/marijuana

^Not including seeds

Characteristics of seeds (n=3) in the middle, Palestine

	Network size	Age	Age first use drug*	HIV status	HVC Status	HVB Status	Number of recruits^	Number of waves	Percent of sample^
Seed 1	22	49	18	-	-	+	79	14	27
Seed 2	--	33	13	-	-	-	115	13	39
Seed 3	4	52	18	-	-	+	102	14	34

*Non-injection drugs other than hashish/marijuana

^Not including seeds

Annex 5. Locations to buy and use drugs, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Where HRDU buy drugs								
Gaza	400	100	0	--	0	--	0	--
North Gaza	139	34.6 (26.1-42.9)	--	--	--	--	--	--
Gaza	116	29.1 (21.7-36.6)	--	--	--	--	--	--
Deir al-Balah	72	17.8 (12.8-22.8)	--	--	--	--	--	--
Khan Yunis	33	8.1 (5.6-10.6)	--	--	--	--	--	--
Rafah	144	36.5 (20.3-52.7)	--	--	--	--	--	--
Jenin	0	--	0	--	25	7.5 (4.7-10.3)	0	--
Tubas	0	--	0	--	5	1.3 (0.2-2.3)	1	0.2 (0-0.6)
Tulkarem	0	--	0	--	29	8.9 (5.2-12.6)	0	--
Nablus	0	--	3	1 (0-2.2)	270	88.0 (83.2-92.6)	2	0.6 (0.2-1.4)
Qalqyilia	0	--	0	--	42	12.1 (8.9-15.20)	0	--
Salfit	0	--	0	--	2	0.5 (0-1.2)	0	--
Ramallah/ al-Bireh	0	--	17	5.8 (3-8.7)	43	13.7 (9.3-18.0)	80	27.7 (21.5-33.9)
Jericho	0	--	0	--	5	2.3 (0-4.6)	14	5.9 (2.9-8.9)
Jerusalem	0	--	46	16.8 (11.1-22.4)	27	8.0 (4.6-11.4)	269	90.3 (86.2-94.4)
Bethlehem	0	--	71	23.5 (17.8-29.2)	0	--	2	0.8 (0-1.5)
Hebron	0	--	253	83.8 (78.4-89.2)	1	0.3 (0-0.8)	3	0.9 (0-1.9)
Israel	0	--	47	15.2 (10.6-19.8)	32	11.1 (7.0-15.2)	43	13.8 (9.8-17.6)
Locations where drugs are usually used								
Gaza	400	100	0	--	0	--	0	--
North Gaza	146	36 (25-47.1)	--	--	--	--	--	--
Gaza	86	21.7 (13.4-30.1)	--	--	--	--	--	--
Deir al-Balah	54	13.8 (8.5-19)	--	--	--	--	--	--
Khan Yunis	24	5.8 (3.3-8.2)	--	--	--	--	--	--
Rafah	122	31.1 (9.4-52.8)	--	--	--	--	--	--
Jenin	0	--	0	--	11	3.2 (1.3-5)	0	--
Tubas	0	--	0	--	4	1.1 (0.06-2.2)	0	--
Tulkarem	0	--	0	--	15	4.3 (2-6.5)	0	--
Nablus	0	--	2	0.7 (0-1.6)	291	97.1 (94.6-99.6)	2	0.6 (0-1.5)
Qalqyilia	0	--	0	--	12	3.5 (1.6-5.4)		
Salfit	0	--	0	--	-	-	3	0.8 (0-1.8)
Ramallah/ al-Bireh	0	--	16	5.9 (3.2-8.6)	22	6.2 (3.5-9)	79	26.8 (21.1-32.5)
Jericho	0	--	1	0.3 (0-0.7)	6	2.5 (0.1-4.8)	11	4.8 (1.9-7.8)
Jerusalem	0	--	18	5.6 (2.8-8.3)	3	0.8 (0-1.8)	256	85 (80.4-89.8)
Bethlehem	0	--	62	20.7 (15.2-26.2)	1	0.3 (0-0.8)	3	0.9 (0-2.2)
Hebron	0	--	266	88 (83-93)	-	-	2	0.7 (0-1.6)
Israel	0	--	23	7.1 (4.2-10)	11	3.4 (1.4-5.5)	25	8 (4.7-11.5)
Amount spent on drugs in a day: median (mean), range								
	399	20 (29.7), 3-1600	298	15 (13.0), 1-23	300	60 (74.7), 10-1000	298	70 (145.7), 0-5000

Annex 6. Treatment of non-injection drug use, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Ever sought treatment for non-injection drug use								
	106	27.3 (22.7-31.7)	36	11.6 (7.3-15.9)	20	5.6 (3.2-8)	74	24.5 (19.1-29.9)
Last time treatment sought for non-injection drug use								
≤ year	29	35.1 (23.2-47.0)	16	47.7 (33.3-62.3)	9	58.6 (36.5-80.7)	21	27.6 (14.3-40.9)
> year	55	64.8 (52.9-76.7)	19	52.3 (37.7-66.7)	6	41.4 (19.3-63.5)	51	72.4 (59.1-85.7)
Places where treatment was ever sought –West Bank								
al Nour wal Hoda	--	--	7	18.0 (4.5-31.3)	0	--	32	4.1 (3.1-5.1)
Sadiq al Tayeb	--	--	9	21.4 (9.9-32.9)	0	--	2	2.2 (1.7-2.7)
al Maqdesy	--	--	3	6.5 (1.1-11.7)	0	--	9	10.9 (5.1-16.7)
Methadone center/ Ramallah	--	--	1	1.8 (0.9-2.7)	1	9.4^^	10	14.7 (6.7-22.8)
Private clinic	--	--	4	12.1 (3.6-20.5)	1	4.8 (4.4-5.2)	3	4.5 (1-8)
MOH psycho-social clinic	--	--	4	12.6 (1.9-23.5)	9	41.5 (18.3-64.5)	3	5 (7.6-9.4)
Rehab center in Israel	--	--	0	--	0	--	15	20.8 (11-30.5)
Rehab center abroad	--	--	1	3.6 (0-11.4)	1	3.8 (3.8-3.8)	0	--
Mental hospital/ Bethlehem	--	--	4	14.6 (8.5-21.1)	2	11.2 (10-21.3)	0	--
Caritas	--	--	2	4.0 (0-9.9)	0	--	0	--
Yamameye Hospital	--	--	0	--	0	--	1	1 (0.7-1.5)
Sadiq al Tayeb	--	--	1	3.6 (1.1-6.1)	0	--	18	21.2 (9.8-32.4)
Burj al Laqlaq	--	--	0	--	0	--	1	1 (0.6-1.5)
Prison	--	--	1	3.6 (0-13.1)	3	17.4 (0.8-34.3)	2	2.7 (1.9-3.5)
Other	--	--	7	17.1 (6.6-27.3)	5	21.5 (10.1-32.6)	--	--
Places where treatment was ever sought-Gaza								
Mental health hospital	1	1.0 (0.7-1.3)	--	--	--	--	--	--
Ministry of Health mental health clinic	14	13.8 (8.4-19.3)	--	--	--	--	--	--
Private doctor	41	37.6 (24.2-51)	--	--	--	--	--	--
Gaza mental health program	10	10.3 (5.3-15.2)	--	--	--	--	--	--
Ministry of Interior Rehab center	25	23.4 (15.1-31.7)	--	--	--	--	--	--
Rehab center Abroad	2	1.8 (1.3-2.3)	--	--	--	--	--	--
Home treatment	15	12.7 (7.3-18.0)	--	--	--	--	--	--
Other	1	0.8 (0.5-1.1)	--	--	--	--	--	--
Frequency of trying to stop using non-injection drugs: median (mean), range								
	390	2 (3.5), 1-30	294	3 (5.7), 1-20	287	2 (4.3), 1-17	291	3 (5.4), 1-50

Annex 7. Past month injection drug use, Palestine, 2017

	Gaza N = 10		South N =25		North N = 25		Middle N=28	
	N	%	N	%	N	%	N	%
Injected drugs in past month								
	0	--	19	68.8	11	50.6	16	52.4
Drugs injected in past month								
Morphine	0	--	0	--	1	6.9	0	--
Heroin	0	--	11	57.7	3	4	15	93.2
Cocaine	0	--	9	43.3	3	23.8	3	22
Tramadol	0	--	1	3.8	2	16.0	0	--
Diazepam	0	--	2	7.6	1	26.8	0	--
Others	0	--	1	7.4		5.6	0	--
Location of drug injection in past month								
Own home	0	--	8	47.2	1	6.9	2	9.2
Private house/ apartment	0	--	2	8.3	2	16	1	6.8
Public place	0	--	1	4.5	0	--	0	--
Dealer's house/ apartment	0	--	0	--	1	9.1	1	5.7
Street/ park	0	--	3	12.8	1	5.6	2	9.8
Shooting gallery	0	--	10	49.0	5	55.49	12	79.2
Other	0	--	0	--	1	6.9	0	--

Annex 8. sharing practices in previous week among those who ever injected drugs, Palestine, 2017

		Gaza N = 0		South N =25		North N = 25		Middle N=28	
Number of people who shared needles/syringes in past week: median (mean), range									
	N	Median (mean, range)		N	Median (mean, range)		N	Median (mean, range)	
	--	--		5	2 (2), 1-4		4	1 (1), 1-10	
							9	15 (29.2), 1-100	

Annex 9. Cleaning needles or syringes among those who reported ever injecting drugs, Palestine, 2017

	Gaza N = 10		South N =25		North N = 25		Middle N=28	
	N	%	N	%	N	%	N	%
Tried to clean or disinfect needle/syringe after last injection								
Yes	1	14.9	12	52.5	6	31.1	4	34.4
Method of cleaning needle/syringe at last injection								
Cold water	0	--	3	24.6	0	--	1	21.5
Warm water	0	--	0	--	1	11.1	1	28.6
Hot water	0	--	3	28.3	1	27.4	0	--
Boiling water	0	--	0	--	2	36.7	0	--
Soap/detergent	0	--	0	--	0	--	1	28.5
Bleach	0	--	0	--	0	--	0	--
Alcohol	1	100	2	14.1	2	24.9	1	21.5
Citric acid	1	100	4	32.9	0	--	0	--
Frequency of use of sterile needle/syringe to inject drugs								
Always/most of the time	3	53.7	13	92.8	3	31.5	7	53.8
Sometimes	0	--	1	7.2	5	68.5	7	46.2
Rarely/Never	5	46.2	0	--	0	--	0	--
Shared paraphernalia (tourniquets, filters, heating equipment, etc.)								
	4	39.9	10	39.7	9	53.9	12	52
Locations where needles/syringes were obtained in past month								
Bought at pharmacy/hospital	1	0.2	20	71.6	7	24.8		54.3
Bought on street	0	--	1	3.1	0	--	3	11.8
Bought from dealer	0	--			6	21.3	1	8.6
From other injectors	0	--	1	3.1	2	18.2	2	7.1
From friends/family who do not inject	1	0.2	1	2.6	1	3.5	4	18.4
From NGO	0	--	1	3.1	0	--	0	--
Israeli government institution	0	--	0	--	0	--	1	3.6

Annex 10. Treatment for injection drug use, Palestine, 2017

	Gaza N = 10		South N =25		North N = 25		Middle N=28	
	N	%	N	%	N	%	N	%
Ever sought treatment for injection drug use								
	2	21.9	9	28.3	2	7.0	13	46.2
Last time treatment sought for non-injection drug use								
1-3 month	0	--	0	--	0	--	0	--
4-6 month	0	--	1	11.1	0	--	1	10
> 6 month	1	100	8	88.9	1	100	10	90
Places where treatment was ever sought (Q506)								
al Nour wal Hoda	0	--	2	24.6	0	--	5	35.8
Sadiq al Tayeb	0	--	2	20.2	0	--	1	5.6
al Maqdesy	1	11.8	2	20.2	0	--	2	12
Methadone center/ Ramallah	0	--	0	--	0	--	5	37.2
Private clinic	0	--	1	10.9	1	50.0		
MOH psycho-social clinic	0	--	0	--	1	50.0	1	12.7
Rehab center in Israel	0	--	0	--	0	--	1	5.6
Rehab center abroad	0	--	1	17.9	0	--	1	12.8
Mental hospital / Bethlehem	0	--	0	--	0	--	1	6.5
Yamameye Hospital	0	--	0	--	0	--	1	6.5
Sadyq al Tayeb	0	--	0	--	0	--	2	14.2
Prison	0	--	0	--	0	--	1	4.9
Others	1	10.1	1	9.2	0	--	0	--

Annex 11. Experience with the police and prison, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Ever arrested	261	65.8 (61.0-70.6)	144	47.3 (40.2-54.4)	171	57.1 (51.5-62.7)	190	62.0 (55.0-69.1)
Ever arrested for drug use	107	40.6 (34.4-46.8)	55	17.3 (11.9-22.7)	64	32.3 (25.1-39.5)	99	32.0 (25.3-38.5)
Arrested for drug use in 2017	36	35.5 (20.4-50.7)	28	53.5 (37.9-69.1)	35	49.3 (31.5-66.9)	42	44.1 (33.9-45.4)
Received treatment services while in prison	19	18.6 (12.0-25.1)	19	39.3 (24.3-54.4)	15	22.9 (10.2-35.6)	16	15 (7.3-22.8)
Type of treatment services received								
Medical treatment	15	83.2 (69.6-96.7)	13	76.5^^	12	83.7 (58.5-100)	12	80 (71.3-88.7)
Psychosocial treatment	4	16.8 (3.2-30.4)	6	23.5^^	3	16.3 (0-41.5)	3	20 (11.3-28.7)
Experienced withdrawal symptoms while in prison	92	88.4 (79.7-0.97)	46	84.8 (73.7-95.9)	54	88.9 (83.7-93.9)	64	65.6 (54.1-77.1)

Annex 12: sexually transmitted infections (STI) and HIV testing, Palestine, 2017

	Gaza N = 400		South N =299		North N = 300		Middle N=299	
	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)	N	%, (95% CI)
Received free condoms in past 12 months								
	18	4.5 (2-6.9)	31	11.4 (6.9, 15.9)	12	3.6 (1.6-5.7)	51	16.4 (12.2-20.7)
Diagnosed with STI in past year								
	3	0.8 (0-1.7)	3	0.8 (0-1.7)	14	5 (2.2-7.9)	9	2.7 (1-4.4)
Knows where to get confidential and free HIV test								
	30	7.7 (4.9-10.5)	38	12.1 (8.2-15.8)	72	23 (17.9-28.2)	71	23.2 (18.4-27.9)
Ever undergone an HIV test	22	5.3 (3.0-7.4)	19	5.2 (2.8-7.5)	21	7 (4-10.1)	72	22.8 (17.5-28.1)
- Received results of last HIV test	20	94.5 (91.7-97.2)	17	87.8 (72.3-100)	19	96 (88.7-100)	69	96.4 (95-97.7)
- Results of that last HIV test								
- Positive	0	--	0	--	0	--	0	-
- Negative	20	100	17	100	18	100	67	98.5 (95.5-100)

References

- United Nations Office on Drugs and Crime (UNODC): World Drug Report 2017. UNODC; 2017.
- Regional Committee for the Eastern Mediterranean: Technical paper- Substance use and dependence.: World Health Organization; 2005.
- Sweileh WM, Sa'ed HZ, Al-Jabi SW, Sawalha AF: Substance use disorders in Arab countries: Research activity and bibliometric analysis. Substance abuse treatment, prevention, and policy 2014, 9(1):33.
- Salamoun M, Karam A, Okasha A, Attasai L, Mneimneh Z, Karam E: Epidemiologic assessment of substance use in the Arab world. Arab J Psychiatry 2008, 19(2):100-125.
- Robins P. Middle East, the prospects of a kinder drug policy remain distant 2016.
- [<https://www.opendemocracy.net/drugpolicy/philip-robins/in-middle-east-prospects-of-kinder-drug-policy-remain-distant#comments>]
- Fawzi MM: Medicolegal aspects concerning tramadol abuse. The New Middle East youth plague: An Egyptian overview 2010. Journal of forensic research (OMICS) 2011, 2(04):e 130-e 130.
- Kanan W: Assessment of controlled substances and dependence and its management by the pharmacist Gaza Strip; 2011.
- Bassiony M: Substance use disorders in Saudi Arabia. Journal of Substance Use 2013, 18(6):450-466.
- Massad S, Karam R, Brown R, Glick P, Shaheen M, Linnemayr S, Khammash U: Perceptions of drug use and sexual behaviours of adolescents in the West Bank, occupied Palestinian territory: A qualitative study. The Lancet 2013, 382:S24.
- Abou Jalal R. Unemployment Drives Gaza's Graduates to Drugs, 2013
- [<http://www.al-monitor.com/pulse/originals/2013/06/gaza-students-drugs-tramadol.html>]
- Progler Y: Drug addiction in Gaza and the illicit trafficking of tramadol. Journal of research in medical sciences: the official journal of Isfahan University of Medical Sciences 2010, 15(3):185.
- Jayousi AFS: Drug Addiction in North Palestine Nablus: An-Najah National University; 2003.
- Thabet A, Vostanis P: Impact of political violence and trauma in Gaza on childrens mental health and types of interventions: A review of research evidence in a historical context. International Journal of Peace and Development Studies 2011, 2(8):214-218.
- Isralowitz R, Afifi M, Rawson RA: Drug problems: Cross-cultural policy and program development: Greenwood Publishing Group; 2002.
- Kamal M: Effect of Drugs on Crime Rates in Palestine. Gaza: Islamic University; 2010.
- The United Nations Children's Fund (UNICEF): Knowledge, Attitudes and practices survey Healthy Lifestyles. Jerusalem: United Nations Children's Fund office in the occupied Palestinian territory,. In.: UNICEF; 2011.
- International Narcotics Control Board (INCB): Report of the International Narcotics Control

Board for 2007. International Narcotics Control Board; 2008.

- Štulhofer A, Chetty A, Rabie RA, Jwehan I, Ramlawi A: The prevalence of HIV, HBV, HCV, and HIV-related risk-taking behaviors among Palestinian injecting drug users in the East Jerusalem Governorate. *Journal of Urban Health* 2012, 89(4):671-676.
- European Monitoring Center for Drug Addiction: PDU (problem drug use) revision summary. 2013
- UN Task Force on Transnational Organized Crime and Drug Trafficking as Threats to Security and Stability: A Gender Perspective On The Impact Of Drug Use, The Drug Trade, And Drug Control Regimes. UN WOMEN POLICY BRIEF. UN Women; 2014.
- Barratt D, Hunt N, Stoicescu C: Injecting drug use among under-18s: A snapshot of available data. London: Harm Reduction International 2013.
- National Institute on Drug Abuse. Nationwide Trends. 2017 [<https://www.drugabuse.gov/publications/drugfacts/nationwide-trends>]
- Rafiey H, Narenjiha H, Shirinbayan P, Noori R, Javadipour M, Roshanpajouh M, Samiei M, Assari S: Needle and syringe sharing among Iranian drug injectors. *Harm reduction journal* 2009, 6(1):21.
- Family Health International: egypt Final Report April 1999–September 2007 In: USAID's Implementing AIDS Prevention and Care (IMPACT) Project. USAID; 2007.
- Abu-Raddad LJ, Hilmi N, Mumtaz G, Benkirane M, Akala FA, Riedner G, Tawil O, Wilson D: Epidemiology of HIV infection in the Middle East and North Africa. *AidS* 2010, 24:S5-S23.
- Toufik A, Johnston L: HIV integrated behavioural and biological surveillance surveys-Morocco 2011–2012. Injecting drug users in Tanger and Nador Rabat: Ministry of Health 2013.
- Bretteville-Jensen AL, Tuv SS, Bilgrei OR, Fjeld B, Bachs L: Synthetic cannabinoids and cathinones: prevalence and markets. 2013.
- Centers for Disease Control Prevention: Notes from the field: severe illness associated with reported use of synthetic marijuana-Colorado, August-September 2013. *MMWR Morbidity and mortality weekly report* 2013, 62(49):1016.
- Cooper ZD: Adverse effects of synthetic cannabinoids: management of acute toxicity and withdrawal. *Current psychiatry reports* 2016, 18(5):52.
- Iudici A, Castelnuovo G, Faccio E: New drugs and polydrug use: Implications for clinical psychology. *Frontiers in psychology* 2015, 6.
- Kelly AB, Chan GC, Mason AW, Williams JW: The relationship between psychological distress and adolescent polydrug use. *Psychology of Addictive Behaviors* 2015, 29(3):787-793.
- European Monitoring Center for Drugs and Drug Addiction. Polydrug use: Patterns and responses. 2009
- Integrated Treatment of Substance Abuse & Mental Illness. Guide to Drug Detox. 2017. [<http://www.dualdiagnosis.org/guide-drug-detox/>]
- Smith-Kielland A, Skuterud B, Mørland J: Urinary excretion of 11-nor-9-carboxy- Δ^9 -tetrahydrocannabinol and cannabinoids in frequent and infrequent drug users. *Journal of*

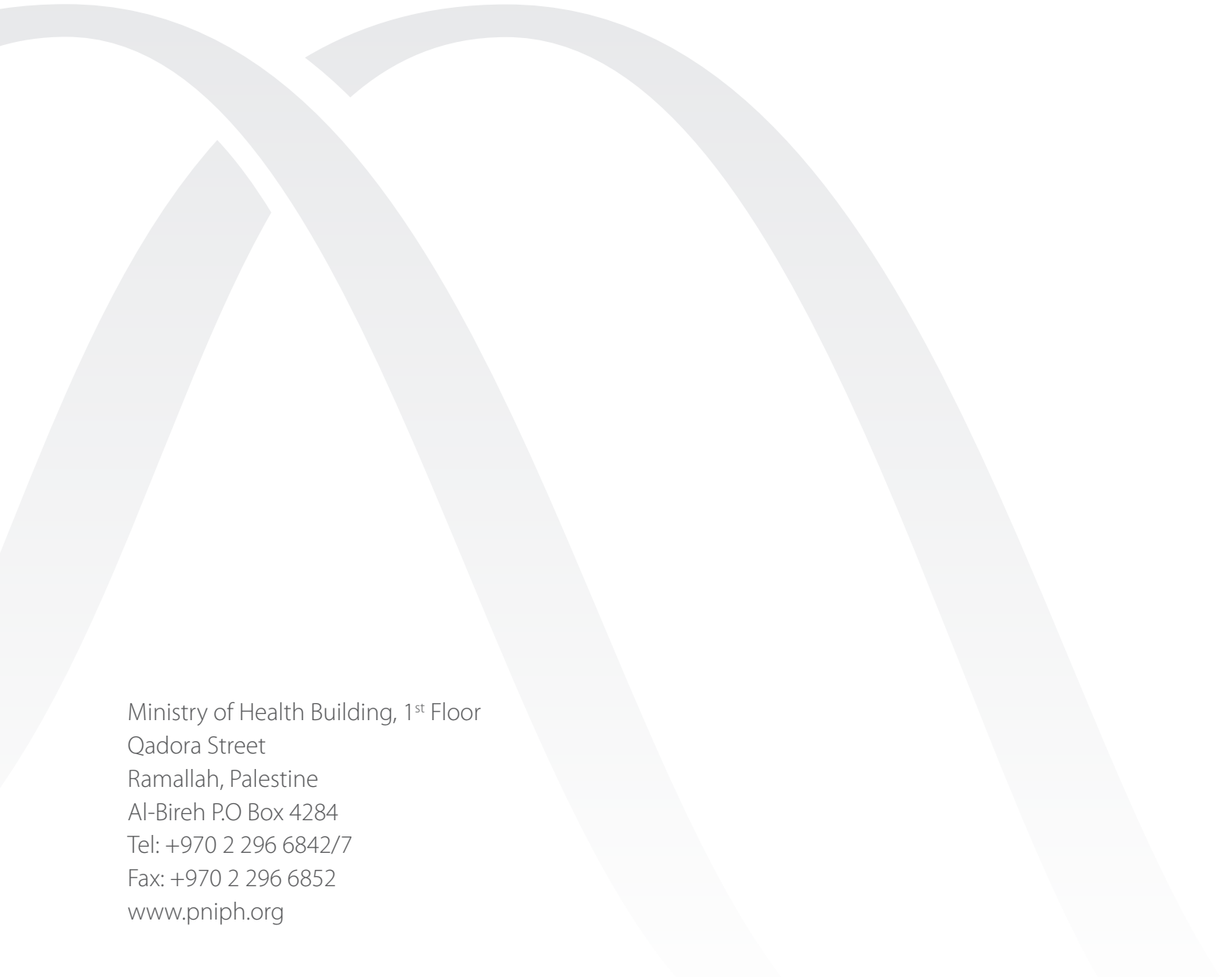
analytical toxicology 1999, 23(5):323-332.

- World Health Organization: The health and social effects of nonmedical cannabis use. The health and social effects of nonmedical cannabis use. edn.; 2016.
- The Joint United Nations Programme on HIV/AIDS: Do No Harm: Health, Human Rights and People who Use Drugs: UNAIDS; 2016.
- World Health Organization: Global status report on alcohol and health, 2014: World Health Organization; 2014.
- Degenhardt L, Charlson F, Stanaway J, Larney S, Alexander LT, Hickman M, Cowie B, Hall WD, Strang J, Whiteford H: Estimating the burden of disease attributable to injecting drug use as a risk factor for HIV, hepatitis C, and hepatitis B: Findings from the Global Burden of Disease Study 2013. The Lancet Infectious Diseases 2016, 16(12):1385-1398.
- United Nations Office on Drugs and Crime: Outcome Document Of The 2016 United Nations General Assembly Special Session On The World Drug Problem. In. New York: United Nations Office on Drugs and Crime; 2016.
- Heckathorn DD: Respondent-driven sampling: A new approach to the study of hidden populations. Social problems 1997, 44(2):174-199.
- Gile KJ, Handcock MS: Respondent-driven sampling: an assessment of current methodology. Sociological methodology 2010, 40(1):285-327.
- McLaughlin KR, Handcock MS, Johnston LG, Japuki X, Gexha-Bunjaku D, Deva E: Inference for the Visibility Distribution for Respondent-Driven Sampling. American Statistical Association, Alexandria, VA 2015.
- P. Glick UK, M. Shaheen, R. Brown, P. Goutam, R. Karam, S. Linnemayr, S. Massad: Eastern Health Risk Behaviors of Palestinian Youth: Findings from a Representative Survey. Mediterranean Health Journal (in press) 2017.
- The Joint United Nations Programme on HIV/AIDS/World Health Organization: Guidelines on Estimating the Size of Populations most at Risk to HIV. Geneva: World Health Organization. 2010.

[http://www.emcdda.europa.eu/publications/selected-issues/polydrug-use-patterns-and-responses_en]

(Footnotes)

- 1 Opium includes heroin, morphine, methadone
- 2 Benzodiazepines
- 3 Phencyclidine is a dissociative sedative-anesthetic drug. It has hallucinogenic properties
- 4 Ketamine is a hallucinogens
- 5 A place where drug users rent rooms to inject together.



Ministry of Health Building, 1st Floor
Qadora Street
Ramallah, Palestine
Al-Bireh P.O Box 4284
Tel: +970 2 296 6842/7
Fax: +970 2 296 6852
www.pniph.org