

**Table 2 Drug use-related history and behaviour distributed by overdose status among people who use drugs in Lebanon, 2014–2015**

Factor	Total No. (%)	Experience of overdose		P-value
		Yes No. (%)	No No. (%)	
<b>First drug ever injected</b>				<b>0.424</b>
Heroin	327 (85.8)	148 (45.3)	179 (54.7)	
Cocaine	46 (12.1)	17 (37)	29 (63.0)	
Methamphetamine or similar stimulant	1 (0.3)	1 (100.0)	0 (0.0)	
Pharmaceutical opioid	1 (0.3)	1 (100.0)	0 (0.0)	
Other (specify)	6 (1.6)	3 (50.0)	3 (50.0)	
Missing	1 (0.3)	1 (100.0)	0 (0.0)	
<b>Ever arrested for drug injection or possession</b>				<b>&lt; 0.0001</b>
Yes	286 (80.1)	149 (52.1)	137 (47.9)	
No	71 (19.9)	15 (21.1)	56 (78.9)	
Missing	25 (6.5)	7 (28.0)	18 (72.0)	
<b>Ever incarcerated for drug injection or possession</b>				<b>&lt; 0.0001</b>
Yes	288 (76.2)	153 (53.1)	135 (46.9)	
No	90 (23.8)	17 (18.9)	73 (81.1)	
Missing	4 (1.0)	1 (25.0)	3 (75.0)	
<b>Ever entered substance dependence treatment for drug use</b>				<b>&lt; 0.0001</b>
Yes	201 (53.0)	120 (59.7)	81 (40.3)	
No	178 (47.0)	50 (28.1)	128 (71.9)	
Missing	3 (0.8)	1 (33.3)	2 (66.7)	
<b>Injection frequency</b>				<b>0.037</b>
Every day	252 (66.8)	127 (50.4)	125 (49.6)	
About every other day	69 (18.3)	24 (34.8)	45 (65.2)	
1–3 times per week	41 (10.9)	13 (31.7)	28 (68.3)	
Less than once per week	15 (4.0)	6 (40.0)	9 (60.0)	
Missing	5 (1.3)	1 (20.0)	4 (80.0)	
<b>Drugs used</b>				<b>0.001</b>
Heroin	249 (65.9)	108 (43.4)	141 (56.6)	
Cocaine	64 (16.9)	21 (32.8)	43 (67.2)	
Club drug (specify)	3 (0.8)	2 (66.7)	1 (33.3)	
Pharmaceutical opioid	33 (8.7)	14 (42.4)	19 (57.6)	
Other (specify)	29 (7.7)	23 (79.3)	6 (20.7)	
Missing	4 (1.0)	3 (75.0)	1 (25.0)	
<b>Injected alone or shared your drugs with another person</b>				<b>0.068</b>
Alone	263 (69.2)	128 (48.7)	135 (51.3)	
With one person	78 (20.5)	31 (39.7)	47 (60.3)	
With more than one person	39 (10.3)	12 (30.8)	27 (69.2)	
Missing	2 (0.5)	0 (0.0)	2 (100.0)	
<b>Drug sharing</b>				<b>0.132</b>
Drugs divided prior to dissolving	55 (42.3)	20 (36.4)	35 (63.6)	
Drugs divided after dissolving	75 (57.7)	29 (38.7)	46 (61.3)	
Missing	252 (66.0)	122 (48.4)	130 (51.6)	
<b>Syringe use practices</b>				<b>0.176</b>
Syringe with a fixed needle	337 (88.7)	145 (43)	192 (57.0)	
Syringe with a detachable needle	42 (11.1)	25 (59.5)	17 (40.5)	
Other	1 (0.3)	0 (0.0)	1 (100.0)	
Missing	2 (0.5)	1 (50.0)	1 (50.0)	

**Table 2 Drug use-related history and behaviour distributed by overdose status among people who use drugs in Lebanon, 2014–2015 (concluded)**

<i>Use of new syringe in most recent injection</i>				<b>0.007</b>
New syringe	259 (69.1)	101 (39)	158 (61)	
Not a new syringe	115 (30.7)	66 (57.4)	49 (42.6)	
Don't know/decline to answer	1 (0.3)	1 (100.0)	0 (0.0)	
Missing	7 (1.8)	3 (42.9)	4 (57.1)	
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	
<b>Age at first injection (years)</b>	19.5 (5.5)	18.6 (4.9)	20.3 (58.8)	0.003
<b>No. of people who shared the most recent same injection site</b>	1.8 (9.5)	2.5 (12.4)	1.2 (6.4)	0.184
<b>No. of people who inject drugs seen in the past four weeks</b>	18.8 (20.3)	21.7 (23.4)	16.5 (17.2)	0.014
<b>No. of arrests for drug injection or possession</b>	4.2 (5.1)	5.6 (5.1)	3.1 (4.7)	< 0.001

SD = standard deviation.

stance dependence treatment. Heroin and cocaine were the 2 most common drugs injected in the past month, reported by 65.9% and 16.9% of the participants. About 69% reported injecting alone, while 30% reported injecting with one or more persons. Of those who reported sharing their drugs, 57.7% reported sharing the drugs after they were dissolved. About 89% reported using a syringe with a fixed needle for injection. In addition, those individuals who experienced overdose tended to be in contact with a greater number of PWID in the past month compared to individuals with no history of overdose (21.6 and 16.9 PWID respectively) (Table 2).

### History of overdose

Those who reported having ever experienced a drug overdose were also significantly more likely to have ever been arrested for injecting or possessing drugs, ever been incarcerated for injecting or possessing drugs, ever participated in substance dependence treatment, inject less frequently than every day, and inject alone. They were also significantly less likely to use a syringe previously used by another person than those who reported never experiencing a drug overdose (Table 2). Those who reported an experience of drug overdose were an average of 1.5 years younger than those who had not experienced an overdose when they first injected drugs. Among those who reported to have ever overdosed, 54.0% reported an overdose in the past year, and they reported 3.4 overdoses on average during their lifetimes.

We used a multivariable logistic regression to model the factors correlated with history of drug overdose among our study participants (Table 3). Those with a history of incarceration and engagement in substance dependence treatment and those with a greater number of arrests due to drug possession or injection in their lifetimes were more likely to report histories of drug overdose.

### Number of overdoses

Of those who had experienced overdoses, individuals reporting more than one overdose event (64.3%), compared with those reporting only a single event (35.7%), reported

a statistically significantly higher number of arrests for injecting or possessing drugs ( $P = 0.005$ ).

### Recentness of overdose experiences

We asked respondents how many times they had experienced a drug overdose in the year prior to the interview. We found that 60 individuals reported experiencing one overdose in the last year and 108 respondents experienced 2 or more drug overdoses in the last year (data not shown).

### Discussion

In this first study of drug overdose, drawn from the largest sample of PWID in Lebanon to date, drug overdose was reported by almost half the study population. Those who reported a history of drug overdose were slightly younger when they first injected, were more likely to have been born outside of Lebanon (mostly in Syria), were more likely to have a history of arrest, incarceration, and substance dependence treatment, were less likely to have injected less than once per week, reported less use of cocaine and more injection of “club drugs,” and were more likely to have injected with more than one person. In multivariable logistic regression analysis, 3 factors, history of incarceration, prior receipt of treatment for substance dependence, and a higher number of arrests for drug injection or possession were associated with reporting ever having experienced a drug overdose.

The proportion of our sample who reported a history of drug overdose is significantly higher than the baseline overdose prevalence reported by a study of patients in a Lebanese drug treatment programme conducted about a year before our study (22). This difference might exist because our sample was not recruited from substance use treatment programmes and may represent PWID at higher risk of drug overdose. Moreover, in our sample, a history of drug overdose was higher among non-Lebanese (mostly Syrians), who have less access to drug treatment in Lebanon. The disparity is alarming given the large population of displaced Syrians in Lebanon and their general difficulty in accessing health care services (28). Also, the proportion of non-fatal overdose