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Impact of Conflict and Displacement on Risk Behaviours Amongst People Who Inject Drugs in Kabul, Afghanistan

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Abstract

Background—Theoretical work posits that drug-related risk behaviour increases during armed conflict; however, few studies have been conducted in conflict settings. The objective of this analysis is to determine whether conflict or local displacement impact risk behaviours among people who inject drugs (PWID) in Kabul, Afghanistan.

Methods—Consenting PWIDs aged 18 years completed interviews at 3, 6, 9, 12, 18, and 24 months of follow-up. Quarters with peak conflict or local displacement exposure were defined and associations with injecting drug use and sexual risk behaviours analysed with generalized estimating equations.

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Conflict of Interest Statement

The authors wish to confirm that there are no known conflicts of interest associated with this publication and the donor played no role in study design, data collection, analysis, or manuscript preparation.

Individual Contributions:

CST, MZR, and SAS designed the protocol, CST, AN, and MRS supervised data collection, KF supervised data entry, MAS, HLS, and CST analysed the data, and CST, DV, and SAS interpreted results and prepared the manuscript. All authors reviewed and approved the final manuscript.

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Results—Of 483 PWID enrolled, 385 completed 1 follow-up visit (483.8 person-years) between 2007 and 2009. All participants were male, with 35% initiating injecting as a refugee. Sharing syringes (Odds Ratio (OR))=8.53, 95% Confidence Interval (CI): 2.58 – 28.2) and sexually transmitted infection (STI) symptoms (OR=1.72, 95% CI: 1.00 – 2.96) increased significantly during peak conflict quarters, while odds of STI symptoms (OR=0.06, 95% CI: 0.02 – 0.20) and arrest (OR=0.61, 95% CI: 0.40 – 0.93) were significantly lower during periods of displacement.

Conclusion—Syringe sharing significantly increased during peak conflict periods amongst PWID in Kabul. Programming should include instruction for coping with conflict and prepare clients for harm reduction needs during conflict.

Keywords

injecting drug use; armed conflict; Afghanistan; syringe sharing; harm reduction

Background

Literature posits that drug use risk behaviours are likely to increase in conflict settings (Hankins et al., 2002; Friedman et al., 2009; Ezard, 2012). Few studies assess the impact of conflict and other potentially disruptive environmental events on risk behaviours among drug users or the outcomes of these behaviours, such as overdose or HIV acquisition (Ezard, 2012). Further, even fewer studies have been conducted in conflict settings, as compared to refugee camps, where different events may incite risk behaviour (Ezard et al., 2011; Strathdee et al., 2003). Of studies assessing impact of conflict on HIV transmission, most have been in settings where HIV is predominantly sexually transmitted (Mock et al., 2004; Mills et al., 2006; Spiegel *et al.*, 2007; Anema *et al.*, 2008; Kim *et al.*, 2009). These studies generally conclude that HIV prevalence is similar or lower among populations in countries affected by wide-scale armed conflict or among those fleeing conflict as compared to non-displaced populations in surrounding communities (Spiegel et al., 2007; Anema et al., 2008), though associations between sexual violence during conflict and HIV acquisition have been reported, not directly reflective of individual increased risk behaviour but rather structural factors associated with armed conflict and displacement (Kim et al., 2009).

In Afghanistan, security has progressively deteriorated since 2006, while injecting drug use has increased, particularly in Kabul (Rehman *et al.*, 2007; Maguet & Majeed, 2010, UNODC, 2010; United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), 2011). Studies have detected measurable HIV prevalence, a concentrated hepatitis C epidemic, and high rates of syringe sharing among people who inject drugs (PWID) in Kabul (Todd et al., 2007; National AIDS Control Program (NACP), Ministry of Public Health, 2010; UNODC, 2010). However, no study to date has assessed on-going risk behaviour in this increasingly insecure environment (Beyrer *et al.*, 2010; Griffin & Khoshnood, 2010). This study aims to measure the impact of conflict compared to local displacement on risk behaviours among a Kabul PWID cohort.

Methods

Setting

Kabul, the Afghan capital, has an estimated metropolitan population of 3.2 million and is located in the Central Region, which has the highest injecting use rate among opiate users nationally (UNODC, 2011; Central Statistics Office, 2012). During most of the study period (June 2007 – December 2009), the *Khana-e-elm-o-ferhang* (former Russian Cultural Centre (RCC)), a large ruined building in west Kabul, housed 200 to 300 drug users nightly. While living there, drug users had time and space to preferentially smoke opiates and were accessible to harm reduction programs. During the study period, there were periodic police raids at the RCC and on-going police harassment and complaints from the community about the RCC. For a period of approximately nine months, there were on-site harm reduction activities that were then relocated to Jangalak, an abandoned office building approximately 4 kilometres from the RCC, though field-based NSP services were implemented at the RCC throughout the study period. There were no bombings or armed conflict events at the RCC during the study period and the site was closed by the police with all inhabitants displaced over a three month period in 2009. Participant recruitment was conducted throughout Kabul city with drug user congregation sites reevaluated monthly due to frequent location change. For the majority of the enrolment period, recruitment sites were largely concentrated in the western sections of the city, consistent with reported and confirmed PWID presence (Todd *et al.*, 2011). Insurgent attacks increased sharply in Kabul province during this period, from 95 in 2006 to 175 in 2009 (The Afghanistan NGO Safety Office (ANSO), 2010).

Participant Eligibility

Participants were enrolled between June 2007 and March 2009 with follow-up through December 2009. Eligibility was limited to PWID who were: aged 18 years; recently injecting drugs (within the prior 30 days); currently residing in Kabul; Dari or Pashto speakers (Dari and Pashto are the major official languages of Afghanistan); and able to provide informed consent. There was no requirement for prior or anticipated duration of residence in Kabul for study entry. The institutional review boards of the Afghan Ministry of Public Health, Columbia University, and the University of California San Diego approved the research protocol.

Data Collection

Recruitment, enrolment, and testing procedures have been previously described (Todd *et al.*, 2011). Briefly, PWID were consecutively recruited from known drug user congregation areas throughout Kabul city, including but not limited to the RCC, with adapted time-location sampling with frequent change in sites due to local factors, like police harassment. Participants were also recruited by study staff through drop-in centres of Kabul-based harm reduction programs operated by Zindagi Nawin, Medicins du Monde, and Nejat. Written informed consent with signature or fingerprint was obtained, per participant choice. For follow-up visits, participants were invited to the study office or a collaborating harm reduction centre for private interview. Participants completed the interviewer-administered questionnaire, received pre-test counselling, and underwent rapid diagnostic testing for antibodies to HCV, HIV-1, and syphilis (SD Bioline, Standard Diagnostics, Kyonggi-do,

South Korea). Reactive screening results for HIV were confirmed with Western Blot (HIV Blot 2.2, Genelabs, Singapore), while reactive HCV results were confirmed using polymerase chain reaction (PCR; Amplicor, Roche Diagnostics, Mannheim, Germany) with reflex recombinant immunoblot assay (Chiron RIBA 3.0 SIA, Chiron Company, Emeryville, California) (Todd *et al.*, 2011). Follow-up visits occurred at 3, 6, 9, 12, 18, and 24 months, with serologic testing every 6 months. Participants received in-kind compensation of meals and transportation and injecting and sexual risk-reduction supplies, including disposable syringes, alcohol pads, naloxone, and hepatitis B vaccination, if eligible.

Following data collection, an assessment of key events in Kabul was conducted through data from key informants, written media, and independent agencies tracking conflict (ANSO, 2010; United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA), 2011).

Measures

Primary outcome measures for this analysis were drug use (e.g. syringe sharing) and sexual (e.g. paying women for sex) risk behaviours and potential modifiers (e.g. NSP use) in the presence of peak conflict, meaning armed conflict impacting Kabul Province, or RCC closure, reflecting local displacement of drug users. Conflict was quantified by enumerating anti-government attacks in Kabul Province by quarter (ANSO, 2010). Closure of the former RCC occurred between February – May, 2009, resulting in displacement throughout Kabul city. Variables representing peak conflict periods (two quarters with highest number of attacks) and local displacement (two quarters surrounding RCC closure) were generated for analysis. The timeline for these events is: Recruitment (June 2007 – June 2009); peak conflict Quarter 1 (July-September 2008); quarters surrounding RCC closure (January – June 2009, with actual closure from February – May 2009); and peak conflict quarter 2 (July – September 2009).

Questionnaires assessed sociodemographic characteristics; travel, incarceration, and medical histories; and risk behaviours at enrolment and each follow-up visit (Todd et al., 2011). Drug use (e.g. sharing syringes or injecting “works” (paraphernalia used to facilitate injecting drug use, e.g. cookers, cotton gauze), syringe re-use, abscess occurrence) and sexual (e.g. purchasing sex from female sex workers (FSWs), condom use) risk behaviours in the last three months were queried. Drug use measures, such as transition from injecting to smoking, assume behaviours associated with opiate use, as heroin is the documented drug of choice among participants (Todd et al., 2011). Sexually transmitted infection (STI) symptoms, defined as reported dysuria, penile discharge, and/or genital ulcers or warts, were also considered as a separate variable. Baseline conflict-associated questions included whether injecting was initiated while a refugee or within Afghanistan. Use of NSP services and both history of and perceived need for drug dependency treatment were also queried at each visit.

Analysis

Descriptive statistics were generated for participants contributing follow-up data. Associations between either conflict or former RCC closure and risk behaviours or modifiers were measured with generalized estimating equations (GEE) using robust standard error

estimates. Bivariate results attaining statistical significance (two-sided $p < 0.05$) were adjusted by any identified confounders; confounders were defined as altering the odds ratio between the risk behaviour and environmental exposure by $>10\%$. All analysis was performed with Stata 11.0 (Stata Corporation, College Station, Texas, USA).

Results

Of 483 participants, 79.9% ($n=386$) completed 1 follow-up visit; characteristics of this group are described in Table 1.

Follow-up visits among eligible participants in Year 2 was much lower: 55.6% (153/275 eligible) at 18 and 38.7% (65/168 eligible) at 24 months, respectively) than in the first year (3 months: 83.9% (3232/385 eligible, 6 months: 300/385 eligible, 9 months: 265/381 eligible, and 12 months: 252/364 eligible). Key events during the study period included peak conflict quarters occurring in July to September of both 2008 ($n=74$ attacks) and 2009 ($n=68$ attacks).

Syringe sharing and STI symptoms increased significantly during peak conflict periods in bivariate and adjusted analyses (Table 2). Confounders common to both significant behavioural outcomes were homelessness at enrolment and initiating injecting as a refugee. During peak conflict periods, homelessness at enrolment reduced odds of STI symptoms, while initiating injecting while a refugee reduced odds of sharing syringes and increased odds of STI symptoms during the follow-up period (Table). Homelessness during the follow-up period also increased odds of STI symptoms with peak conflict exposure. Odds of current and any NSP use increased by 26% and 23% during peak conflict periods, respectively, though did not reach statistical significance.

During the former RCC closure period, participants had lower odds of incident STI symptoms and arrest in bivariate and adjusted analyses. Odds of STI symptoms were increased by homelessness at both baseline and during the follow-up period and initiating injecting as a refugee. Odds of arrest during former RCC closure were reduced by initiating injecting as a refugee and increased if a participant was homeless during the follow-up period.

Discussion

This study prospectively measured drug use and sexual risk behaviours in Afghanistan amidst deteriorating security. The results may clarify previous work concerning conflict and injecting drug use, where risky injecting practices are hypothesized to increase during periods of conflict, and also inform on-going programming in Afghanistan and similar settings (Hankins et al., 2002; Rhodes et al., 2005; Rhodes & Simic, 2005; Strathdee et al., 2006; Friedman et al., 2009; Ezard, 2012). Key findings include significantly increased syringe sharing and increased odds of STI symptoms during quarters of peak conflict.

As predicted by theoretical work, some injecting risk behaviours, particularly sharing syringes, significantly increased during peak conflict periods (Rhodes & Simic, 2005; Strathdee et al., 2006; Friedman et al., 2009). Initiating injecting as a refugee and within

Afghanistan both reduced odds of sharing syringes during peak conflict periods. This finding suggests a shared tendency toward riskier behaviour, as transition to injecting occurred in a stressful environment and require further investigation. Notably, an earlier analysis from a 2004–2005 cross-sectional study in Kabul found that, among 463 PWID, there were no significant differences in reported syringe sharing in the last six months between those who had lived outside Afghanistan in the last decade, most (80%) of whom were fleeing armed conflict, compared to those who had never left (Todd et al., 2007b). However, the time period for those outside the country spanned a decade and the timing of conflict exposure relative to reported risk behaviours could not be established, complicating comparisons. By contrast, no syringe sharing was reported and no other injecting risk behaviours significantly changed during former RCC closure, distinguished by en masse drug user displacement. This change may be attributable to social network disruption that reduced likelihood of sharing and may also indicate that the impact of this displacement was not enough to alter propensity to engage in risk behaviours.

STI symptoms increased during peak conflict periods, though there were lower odds of other sexual risk behaviours. We suspect this finding is due to under-reporting, particularly of sex with other men, which may have occurred in small networks that sequestered themselves during conflict. Initiating injecting as a refugee increased odds of STI symptoms while homelessness decreased these odds during peak conflict periods. The coping skills for injecting risks among former refugees posited previously may not extend to sexual behaviours, as noted in Bosnia (Rhodes & Simic, 2005). Homelessness and attendant reduced resources may have reduced STI odds by preventing purchase of sex, whereby STI symptoms may be less common. Significantly lower odds of STI symptoms during RCC closure occurred without significant change in reported sexual risk behaviours and may be attributable to social network disruption and need to find new partners. However, STI symptoms increased among homeless individuals who may have disproportionately engaged in transactional sex following displacement from usual support networks.

RCC closure appeared to have little impact on reported injecting or sexual risk behaviours overall. This event proceeded slowly over a series of months and may have been less traumatic an experience due to some element of forewarning, in contrast to attacks by non-government forces or detonation of explosive devices. There may also have been less expressed stigma from the surrounding community during this period, due to cognizance that “this problem” would soon disappear. The lower arrest rate during RCC closure may represent a similar amnesty period during the closure process. Alternately, the lower arrest rate may have resulted from displacement whereby police could not find drug user communities; odds of arrest increased with homelessness, potentially due to easier detection of these individuals. Initiating injecting as a refugee reduced odds of arrest during RCC closure, possibly due to increased skill in avoiding authorities learned while a refugee. Further research is needed to describe sexual risks and police interactions in this context.

NSP use increased during conflict though was not statistically significant. This finding merits commentary for two reasons: first, these services were utilized within an insecure environment, a positive reflection of staff commitment and program resiliency to adapt to difficult field conditions. Second, syringe sharing increased despite increased NSP

utilization, suggesting that risk behaviour motivation may be tied to stressors resulting from conflict or that services were unable to completely meet demand (Rhodes & Simic, 2005). Further investigation is needed to determine NSP service adequacy and reasons for discontinuation in this challenging setting.

Several additional limitations must be considered. Recruitment did not use a randomized or network-based sampling approach, potentially limiting generalizability of findings. Low follow-up rates in the second year, when most of the environmental events occurred, may also limit generalizability and should be considered when interpreting data. Some reporting or recall bias may have been present; to minimize this, participants were asked about behaviours in the last three months. There may also have been under-reporting of sensitive behaviours, particularly sexual risk behaviours, in this very conservative society. Due to low literacy, study representatives, who built rapport with participants through health education, administered questionnaires.

In summary, data indicate Kabul PWID are sensitive to periods of increased armed conflict, fostering increased risk behaviours. Our data indicate need for expanded sustained NSP and drug dependence treatment programming during periods of conflict and displacement. Generally, Kabul harm reduction programs made great strides in improving awareness and availability of injecting supplies through the cohort period and responded well to environmental changes. However, increased syringe sharing accompanying conflict indicates need for program emphasis on injecting safety, preparing for conflict-induced supply shortage, and coping with conflict. Further, programs can proactively prepare for attacks by storing supplies and developing additional educational programs for clients on coping with acute security changes. There are few reports of harm reduction models for conflict settings or in situations with substantial population displacement (Ezard et al., 2011). These findings will hopefully provide impetus for harm reduction service models specifically for conflict-affected populations.

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Highlights

- Syringe sharing increased 8-fold during conflict periods amongst people who inject drugs in Kabul.
- Local displacement reduced odds of incident STI symptoms and arrest.
- Needle and syringe program use increased during conflict periods, reflecting program resiliency.

Table 1

Demographic and behavioral characteristics of people who inject drugs participating in a cohort study completing any follow-up visits in Kabul, Afghanistan, 2007–2009 (n=386).

Variable	Median, (IQR)
Age (yrs)	28, (24 – 35)
Duration injecting (yrs)	2, (1 – 6)
Age initiated injecting (yrs)	24, (21 – 29)
Level of education (yrs)	5, (0 – 8)
Variable	n, %
Male	386, 100%
Ever married	173, 45%
Born in Afghanistan	333, 87%
Lived outside Afghanistan in last 5 years	250, 65%
Homeless at baseline	99, 26%
Employed at baseline	45, 12%
Prior incarceration	242, 63%
Initiated Injecting in Afghanistan	245, 64%
Initiated Injecting as a refugee	124, 36%
Shared needles/syringes within 3 months at baseline	70, 8%
Shared injecting equipment within 3 months at baseline	106, 28%
NSP service use at Baseline	204, 53%
Receive prior addiction treatment	60, 16%

NSP= needle and syringe distribution and collection program

IQR= interquartile range

n= number

yrs= years

Table 2

Associations between exposure to key environmental events and risk behaviours among male injecting drug users in Kabul, Afghanistan (n=329).

Outcome	Quarters of Peak Insurgent Attacks		Quarters of former Russian Cultural Centre Closure	
	OR, (95% CI)	AOR, (95% CI)	OR, (95% CI)	AOR, (95% CI)
Sharing of syringes/needles	8.53, (2.58 – 28.20)	6.23, (1.41 – 27.6)*	None reported	
Sharing of injecting works (paraphernalia used to facilitate injecting drug use, e.g. spoons)	1.16, (0.83 – 1.64)		1.09, (0.82 – 1.45)	
Current NSP Use	1.26, (0.91 – 1.76)		0.81, (0.61 – 1.07)	
Any NSP Use [§]	1.23, (0.92 – 1.64)		1.02, (0.80 – 1.30)	
Abscess from injecting during follow-up [§]	1.18, (0.72 – 1.93)		1.02, (0.64 – 1.62)	
Changed injecting to smoking	0.76, (0.53 – 1.09)		1.04, (0.77 – 1.40)	
STI symptoms [§]	1.72, (1.00 – 2.96)	1.98, (1.10 – 3.56)**	0.06, (0.02 – 0.20) [‡]	0.09, (0.03 – 0.30)
Arrest/Incarceration [§]	0.97, (0.60 – 1.58)		0.61, (0.40 – 0.93) ^{‡‡}	0.60, (0.37 – 0.97)
Paid for sex with FSWs [§]	0.48, (0.06 – 4.02)		0.19, (0.02 – 1.52)	
Had sexual relations with males [§]	0.38, (0.04 – 3.83)		0.93, (0.21 – 4.14)	
Any condom use during follow-up	1.17, (0.47 – 2.92)		1.16, (0.53 – 2.54)	

AOR= adjusted odds ratio

CI= confidence interval

FSW= female sex worker

NSP= Needle and syringe collection and distribution program

OR= odds ratio

STI= sexually transmitted infection

* Effect of peak violence on syringe sharing, confounded by initiating injecting while a refugee (OR=8.53 to AOR=5.92) and initiating injecting in Afghanistan (OR=8.53 to AOR=7.48).

** Effect of peak violence on STI symptoms confounded by homelessness at baseline (OR=1.72 to AOR=1.52) and initiating injecting as a refugee (OR=1.72 to 2.24).

[‡] Effect of former RCC closure on interval STI symptoms, confounded by homeless at baseline (OR=0.06 to AOR=0.067), interval homelessness (0.06 to 0.073), and initiating injecting while a refugee (0.06 to 0.069).

^{‡‡} Effect of former RCC closure on interval arrest, confounded by initiating injecting as a refugee (OR=0.61 to AOR=0.53) and interval homelessness (0.61 to 0.68).

[§] Measured during follow-up period.