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Characteristics of users of syringe vending machines in Berlin

Summary

Vending machines providing sterile injection equipment are part of the AIDS prevention measures for injecting drug users (IDU) in Berlin. A study was carried out to assess characteristics (history of iv drug use, frequency of use of the machines, contact with counselling units for IDU, attitudes towards the machines, HIV serostatus) in users of syringe vending machines. Of the 313 individuals surveyed, 77% reported using the vending machines regularly (more than four times a week). Compared to other studies of IDU in Berlin (eg at syringe exchange programmes) the users of the vending machines hat a significantly shorter history of iv drug use. Overall, 72% of the IDU had had contacts at some time with specialised agencies for counselling on drug abuse and AIDS; however, only 33% had such contacts currently. Sixty-five percent of the IDU commented critically on the machines or made suggestions for improvement; 18% had experienced that the machines did not always work well, 14% called for more machines. HIV seroprevalence based on self-reported test results (N = 252) was 20%. In multivariate statistical analysis positive HIV serostatus was associated with site of interview, longer history of intravenous drug use, and current contact with counselling agencies. Despite the ready availability of syringes and needles, 25% of the participants reported borrowing injection equipment from other IDU in the previous six months. This proportion was significantly higher in IDU younger than 25 years (39%). In addition to syringe exchange programmes and pharmacies, the syringe vending machines appear to be an important source of sterile injection equipment for IDU in Berlin particularly for those without current contacts to specialised counselling units.

Several studies have shown that injecting drug users (IDU) have significantly reduced their risks of HIV infection, particulary by reducing the borrowing of syringes and needles. The ready availability of sterile injection equipment (e.g. through exchange programmes) has facilitated such behaviour changes[1–3]. Syringe exchange programmes in specialised units were found to be well accepted and not to increase the overall prevalence of intravenous drug use[4,5]. In Berlin, before the HIV epidemic started, sterile injection equipment could be purchased only from a few pharmacies. Subsequently, as a part of the AIDS prevention policy, more pharmacies were encouraged by the regional health department to sell syringes and needles cheaply to IDU, and to a small extent they were also distributed to IDU by outreach workers. However, it remained difficult to obtain sterile injection equipment at night and at weekends. There was also concern that some IDU wanted to stay anonymous and would not by sterile syringes at pharmacies. Therefore, in 1988 the first vending machine for syringes and needles was set up at a main meeting place of IDU. In 1989, syringe exchange programmes were established in storefront units providing social and medical care for IDU, and an additional five vending machines were set up at places where IDU frequently gathered. Currently, each month 15000 sets (each containing 2 syringes and 2 needles) are purchased from the machines. About 35000 syringes an needles are provided monthly by exchange programmes. Little was known about the IDU who used the machines. Therefore we carried out a study to obtain data on the sociodemographic and behavioural characteritics of the

Variable	Frequency distribution of variable %	(N)
Sex		
male	65.5	(205)
female	34.5	(108)
Age		
≤24 years	26.6	(83)
25–29	36.9	(115)
30–34	24.4	(76)
≥35	12.2	(38)
History of iv drug use		
≤2 years	22.4	(70)
3–5	19.8	(62)
6–10	28.1	(88)
>10	29.7	(93)
Frequency of injecting		
More than once a day	77.6	(242)
Once a day	11.2	(35)
Less frequently	11.2	(35)
Site of interview		
A	28.4	(89)
B	37.1	(116)
C	34.5	(108)

Table 1. *Basic demographic characteristics of the study population.*

users of vending machines. The objectives were to characterise this group of IDU better with respect to basic demographics, frequency and history of iv drug use, and contact with counselling agencies including storefront units, and to assess the frequency of the use of the machines and the attitudes of the IDU towards them. Moreover, information was obtained on the prevalence of HIV antibody testing, HIV serostatus, and the borrowing of injection equipment.

Subjects and methods

The three vending machines which are used most frequently were chosen as sites for interviews. Two machines are located near traditional meeting places of IDU (sites B and C). The third machine has been set up where another main meeting point of IDU has developed more recently (site A). From these three machines about 80% of all syringes and needles provided by vending machines are purchased. In February and March 1992, on 15 randomly chosen days, from 2 p.m. to 2 a.m. all IDU approaching the machines were asked by trained personnel to answer anonymously a standardized questionnaire. In the preceding weeks information on the puposes of the study had been displayed at the machines. Ninety-two percent of the IDU agreed to participate. Reasons for not participating were: lack of time, lack of knowledge of German, suspicion about giving personal data. The refusal rats at the three sites did not differ significantly. In all, 313 questionnaires were completed and could be analysed (site A 89, site B 116, site C 108). In order to reduce noncompliance, no blood or saliva samples were collected.

For bivariate statistical analysis chi-square-tests were performed. In multivariate analysis the variables found to be significantly associated with HIV serostatus (self-reported) in the bivariate analysis were entered into a logistic regression model to adjust for potential confounding effects.

Results

Study population

Overall, 313 injecting drug users (IDU) were interviewed at the three vending machines. Of the participants, 65% were men and 35% were women. The median age was 28 years (men 28, women 26). The median duration of iv drug use was 7 years; 22.4% of the individuals had injected for up to two years, 29.7% for more than 10 years. A majority of the IDU (88.8%) injected drugs at least once a day, 18.6% had done so more than three times daily. For details of demographic and drug use characteristics see table 1. Except for the variables age, and age at first iv drug use, no significant differences were found between men and women. Female participants were significantly younger in starting iv drug use. Of the women, 43% had been younger than 18 years when injecting drugs for the first time. This proportion was 28.7% in men ($p < 0.01$). A majority (67%) of the individuals reported living in the central districts of what was former

West Berlin, 4% lived in East Berlin. The IDU interviewed at the three different sites did not differ significantly by sex, age, history of drug use, behavioural variables, and previous HIV antibody testing.

Use of vending machines

The vending machines were used more than four times a week by 77.3% of the IDU; 52.1% used them daily, 5.8% only at weekends and on holidays. The frequency of the use of the machines was associated with the frequency of injecting. Of the IDU who currently injected more than once daily, 59.1% (143/242) used the machines at least once a day. This proportion was 28.6% (20/70) in the other IDU ($p < 0.001$). No significant differences in the use of the machines were found with respect to age, sex, site of interview, history of iv drug use, previous HIV antibody testing, or self-reported HIV serostatus. Of all subjects, 84.7% knew of at least two machines. Only 11.2% knew of five or six. Knowledge of different vending machines was not associated with frequency of use of the machines. Comments on the machines or suggestions for improvement were made by 64.5% of the subjects. Of all participants, 14.1% called for more machines, 17.3% asked for ascorbic acid, and 12.8% for alcohol swabs for skin disinfection to be added to the assortment; 17.6% had experieced that the machines did not always work well or had been empty sometimes. Of the IDU, 60.4% reported that they usually discarded their used syringes and needles into the waste-bin at home; 39.5% used public waste-bins; 27.5% a special shaft at the vending machines; 5.8% used the lavatory, 6.1% usually took the syringes to exchange programmes, and 1.0% reported that they threw them away where they were used (toilets, parks etc.).

Variable	% seropositive out of (N)	p-value
Sex		n.s.
Male	17.8 (163)	
Female	23.6 (89)	
Age		<0.01
<25 years	7.7 (52)	
25–29	18.8 (191)	
>29	27.6 (98)	
History of iv drug use		<0.01
≤2 years	2.6 (38)	
3–5	14.3 (50)	
6–10	11.8 (76)	
>10	37.2 (86)	
Site of interview		<0.01
A	6.9 (72)	
B	21.3 (89)	
C	28.6 (91)	
Current contact with agencies for IDU		<0.01
no	13.3 (165)	
yes	29.9 (87)	

n.s. = not significant

Table 2. *Association of HIV serostatus (self-reported) and sociodemographic/behavioural variables in IDU with known test results (N = 252).*

Contact with counselling agencies

Of all participants, 71.6% had at some time had contacts with agencies for counselling on drug abuse and AIDS, including storefront units providing syringe exchange. However, only 32.6% had such contacts currently. This proportion was 21% in those who had been injecting for up to 2 years, and 37.5% in those injecting for more than 10 years ($p < 0.05$). Of the IDU younger than 25 years, 29.9% reported current contacts to such agencies as compared to 35.2% of the IDU aged 30 years or older (n.s.). IDU who knew that they were HIV-infected were more likely to have current contacts with counselling agencies (56.8%) than individuals who reported negative test results (30.7%) or had never been tested (20.3%) ($p < 0.01$). No association between current contact with counselling agencies and other variables such as site of interview, sex, frequency of injecting, and frequency of using the machines was found.

Prevalence of HIV infection

In 82.9% of the IDU (257/310), an HIV antibody test had been performed. This proportion increased from 62.7% in the age group <25 years to 86% in those older than 29 years. In 59.9% of the individuals the test had been performed within

Variable	HIV prevalence odds ratios	95% confidence interval	p-value
History of iv drug use			
≤2 years	baseline		
3–5	6.6	0.76–57.1	0.08
6–10	5.8	0.67–49.1	0.10
>10	25.3	3.2–99	0.002
Site of interview			
A	baseline		
B	3.37	1.05–10.83	0.041
C	5.72	1.92–17.06	0.002
Current contact with counselling agencies			
no	baseline		
yes	2.59	1.24–5.41	0.011

Table 3. *Multivariate analysis (logistic regression) of the association of HIV serostatus (self-reported) and different variables in IDU.*

the previous 6 months; the proportions were 75.5% and 86% for the previous 12 and 18 months respectively. Of the participants with a known test result, 19.8% (50/252) reported that they were HIV-seropositive; 17.8% of the men and 23.6% of the women (n.s). In the IDU with known test results bivariate analysis showed an association between positive HIV serostatus and age, history of iv drug use, site of interview, and current contact to counselling agencies. HIV seroprevalence was 7.7% in those younger than 25 years and 27.6% in those older than 29 years ($p<0.01$). It increased from 2.6% in those with a history of iv drug use of up to two years to 37.2% in those injecting for more than 10 years ($p<0.01$). HIV seroprevalence varied from 6.9% at site A to 28.6% at site C ($p<0.01$). Of the subjects with current contacts with counselling agencies, 29.9% of those with known test results were HIV-seropositive compared to 13.3% of those without such contacts ($p<0.01$). For details of associations of HIV serostatus and different variables see table 2.

In multivariate analysis, self-reported positive HIV serostatus was significantly associated with duration of iv drug use (prevalence odds ratio in the highest group 25.3, 95% confidence intervals 3.2–99), site of interview (site B POR 3.4, 95% CI 1.2–10.8; site C POR 5.7, 95% CI 1.9–17), and current contact with counselling agencies (POR 2.5, 95% CI 1.2–5.4) (Table 3).

Borrowing of injection equipment

In the six months preceding the interview, 24.9% of the subjects had borrowed injection equipment from other IDU (men 27.8%, women 19.4%, n.s.). This proportion was 16% in the seropositive, and 25.7% in the seronegative group (n.s.). Younger IDU were more likely to have borrowed syringes and needles; 38.6% of those younger than 25 years, compared to 20.1% of the older IDU, reported this behaviour ($p<0.01$). The proportion of those who had borrowed syringes in the previous 6 months was lowest among IDU with a history of iv drug use of more than 10 years (19.4% versus 28.2% in the other IDU). However this was not statistically significant. Other variables such as site of interview, frequency of use of the machines, commenting on the machines, and previous or current contact with counselling agencies were not significantly associated with the borrowing of syringes and needles in the previous 6 months (data not shown).

Discussion

Vending machines for syringes and needles, which have been provided in Berlin since 1988 as part of the AIDS prevention activities, have been well accepted by IDU. However, no information has been available on the individuals who use them. This study of users of vending machines provides information on demographics, drug use characteristics, frequency of use of vending machines, contacts with counselling agencies, and HIV serostatus.

The study population did not differ significantly by sex, age, and frequency of drug injections from other large subpopulations of IDU in Berlin recruited mainly from treatment centres, from storefront units, or by street recruitment[6–7]. However, the users of vending machines were more likely to report a shorter history of injecting. In a multisite, cross-sectional study on HIV infection in IDU only 12% of individuals recruited from storefront units with syringe exchange had injected for up to 2 years, as compared to 22% in this study[6]. One explanation for these differences could be that early in their injection career IDU may prefer to obtain injection equipment anonymously from vending machines rather than from phar-

macies or specialised counselling agencies with needle exchange. They may not yet consider themselves as really being drug dependent, and may not be willing to contact such agencies. This is supported by the finding that only 33% of the IDU in our study reported current contacts with counselling units. This rate was significantly lower in those with a shorter history of injecting.

A majority (77%) of the IDU in our study used the vending machines regularly (more than 4 times a week). Currently about 30000 syringes and needles are dispensed by the machines each month. About 35000 syringes and needles are obtained from the three syringe exchange programmes. The data indicate that for many of the IDU in Berlin, the vending machines are a main source for sterile injection equipment.

Overall, 65% of the IDU commented on the machines, mainly to suggest additions to the assortment. In the meantime, alcohol swabs for skin disinfection have been included in the sets of injection equipment. A significant proportion (18%) had experienced that the machines had not always worked well or had sometimes been empty. This is of particular concern when IDU rely on the availability of syringes from the machines (e.g., at night). To improve this situation the machines are now checked and refilled daily. Though there was some controversy about them at the beginning, the machines are now accepted by the public. Only a minority of the IDU reported that they habitually discarded syringes and needles where they used them. These answers may have been biased by socially desirable responding. However, the machines did not lead to a significant increase in the numbers of used syringes being found near the meeting places of IDU.

The overall HIV seroprevalence was 20% in those IDU with known test results. There are limitations in interpreting the HIV prevalence because it is based on self-reported results. Reporting of former positive test results in IDU was found to be highly correlated with current serostatus[8]. However, the HIV prevalence in our study probably underestimates the real prevalence. Some of the subjects reporting negative test results had undergone HIV antibody testing quite a while ago, and may have acquired HIV infection since. The HIV seroprevalence is in accordance with rates of 20 to 25% reported from recent studies with multisite recruitment of IDU from counselling and treatment centres, storefront units, and outreach work[6–7].

In multivariate analysis in the subgroup with known HIV antibody test results, HIV infection was significantly associated with history of iv drug use, site of interview and current contact with counselling agencies. HIV-infected IDU obviously are more likely to seek help from such agencies where they receive individual psychosocial counselling. Moreover, it is easier for HIV-infected IDU to enter methadon maintenance treatment if they are in contact with such agencies. The two interview sites B and C, where the adjusted HIV prevalence odds ratios were significantly higher than at site A, have been traditional meeting places of IDU for a long time. The relatively low rate of 7% at site A is probably due to the fact that the IDU scene there has only existed for the last few years. All the HIV infection data have to be interpreted with caution since they rely on self-reported test results.

It is disturbing that 25% of the IDU had borrowed injection equipment within the six months preceding the interviews despite the fact that in Berlin sterile syringes and needles can be obtained relatively easily. From other cities similar rates have been reported in studies with multisite sampling and also in attenders of exchange programmes[9–10]. In a recent study from the United Kingdom, 9% of the clients of an exchange scheme reported borrowing needles and syringes in the previous four weeks[11]. We found a significantly higher rate of borrowing in younger IDU, but not in individuals with a shorter history of injecting. Although the ready availability of sterile injection equipment plays an important role in AIDS prevention in IDU it is not sufficient, and additional prevention measures are necessary. They should include intensified outreach work and in particular the promotion of self-help activities to modify the behaviours (use of borrowed syringes, unsafe sex) which expose IDU to risks of HIV infection and other parenterally and sexually transmitted diseases. Peer groups probably have better access to young IDU and may be able to motivate them for risk reduction.

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Zusammenfassung

Charakteristik von Benutzern von Spritzenautomaten in Berlin

Automaten zur Abgabe steriler Injektionsbestecke sind in Berlin Teil der AIDS-Präventionsmaßnahmen für iv Drogenkonsumenten (IVD). Eine Studie wurde durchgeführt, um Informationen zu bestimmten Charakteristika (Inanspruchnahme der Automaten, Kontakt zu Beratungseinrichtungen für IVD, Kritik/Verbesserungsvorschläge zu den Automaten, HIV-Serostatus) bei den Benutzern der Automaten zu gewinnen. Siebenundsiebzig Prozent der 313 Untersuchten benutzten die Automaten regelmäßig (mehr als viermal wöchentlich). Im Vergleich zu einer Studie bei IVD in Spritzentauschprogrammen war die Dauer des iv Drogenkonsums bei den Benutzern der Spritzenautomaten signifikant kürzer. Zwar hatten 72% schon einmal Kontakt zu Beratungseinrichtungen für IVD gehabt, zur Zeit der Untersuchung bestanden solche Kontakte jedoch nur bei 33%. Von allen Untersuchten äußerten 65% Kritik oder Verbesserungsvorschläge zu den Automaten: bei 18% hatten diese nicht immer funktioniert, 14% forderten mehr Automaten. Die HIV-Infektionsraten bei denjenigen mit bekanntem Testergebnis (N=252) lag bei 20%. In der multivariaten statistischen Analyse waren Untersuchungsort, längere Dauer des iv Konsums und aktueller Kontakt zu Beratungseinrichtungen signifikant mit einem positiven HIV-Serostatus assoziiert. Trotz der guten Verfügbarkeit von sterilen Injektionsbestecken gaben 25% der Befragten an, in den letzten 6 Monaten gebrauchte Spritzbestecke von anderen IVD benutzt zu haben. Dieser Anteil war bei jüngeren IVD (<25 Jahren) mit 39% signifikant erhöht. Die Spritzenautomaten stellen eine wichtige Ergänzung zur Abgabe von sterilen Spritzen und Kanülen in Spritzentauschprogrammen und Apotheken dar, insbesondere für IVD ohne Kontakt zu spezialisierten Beratungseinrichtungen.

Resumé

Caractéristiques des usagers des distributeurs automatiques de seringues à Berlin

La mise en place de distributeurs automatiques de seringues stériles pour les toxicomanes fait partie des mesures préventives contre le SIDA à Berlin. Une étude a été réalisée pour déterminer les caractéristiques des usagers de distributeurs automatiques (utilisation des distributeurs, contacts avec les services d'aide aux toxicomanes, avis à propos des distributeurs, status sérologique VIH). Parmi les 313 personnes participant à l'étude, 77% ont déclaré utiliser les distributeurs régulièrement (plus de 4 fois par semaine). 72% des participants avaient eu des contacts avec des services spécialisés d'aide aux toxicomanes mais seulement 33% utilisaient ces services au moment de l'etude. 65% de personnes examinées ont exprimé leurs critiques ou suggestions pour l'amélioration des distributeurs: 18% ont signalé que les distributeurs ne fonctionnaient pas toujours, 14% demandaient l'installation d'un plus grand nombre de ceux-ci. La prévalence de l'infection à VIH rapportées par les toxicomanes était de 20% (N=252). Une analyse statistique multivariée montre que la séropositivité au VIH est associée avec de lieu de l'examen, la durée de la consommation de drogue par injection et le contact avec des services d'aide. Malgré la disponibilité de seringues stériles, 25% des personnes ont indiqué avoir utilisé du matériel d'injection usagé au cours des 6 derniers mois. Cette proportion était significativement plus élevée parmi les toxicomanes de moins de 25 ans (39%). Les distributeurs automatiques semblent constituer un complément important au programme d'échange de seringues stériles en particulier pour les toxicomanes qui n'ont pas de contact avec les services d'aide aux toxicomanes.

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