Pathways to Prostitution: The Chronology of Sexual and Drug Abuse Milestones

John J. Potterat
El Paso County Department of Health, Colorado Springs, CO

Richard B. Rothenberg
Emory University School of Medicine

Stephen Q. Muth
El Paso County Department of Health, Colorado Springs, CO

William W. Darrow
Florida International University

Lynanne Phillips-Plummer
El Paso County Department of Health, Colorado Springs, CO

To assess the sequence, timing, and prevalence of sexual and illegal drug use milestones in prostitute women, we interviewed 237 prostitutes in the community and 407 comparison women at an STD clinic. Drug use was more commonly reported by prostitutes than comparisons (86% vs. 23%), as was non-consensual prepubertal sex (32% vs. 13%). Sexual- and drug-related milestones occurred in the same order in both groups, with drug use preceding sexual activity and injecting drug use preceding prostitution. Ninety-four percent of prostitutes who injected drugs reported noninjectable drug use before prostitution, and 75% of prostitutes who injected drugs reported doing so before beginning prostitution. The age distributions at critical events were similar for prostitutes and comparison women who reported regular drug use. Comparison women who did not report regular drug use were in general older than both the groups at the time of early sexual experience and drug experimentation. However, the ordering of these events was the same. Within the prostitute cohort, ethnic groups differed in their age distributions at several critical events, but not in the order in which these events occurred. Information reported by prostitutes on sex- and drug-related milestones was reproducible on reinterview a year later. Further research is needed to develop a coherent understanding of the relationship of underlying psychological and environmental factors to the observed progression from substance abuse to prostitution.

To paraphrase Ebbinghaus: Prostitution has a long past, but a short history (Ebbinghaus, 1909, p.1). This observation derives from difficulties in obtaining meaningful information from representative samples of prostitutes, who comprise elusive and inconstant populations. In Colorado Springs, Colorado, a metropolitan area with approximately 400,000 persons (1990 census) located 100 kilometers south of Denver, our programs for the control of sexually transmissible diseases (STD) have brought us into quotidian association with the prostitute population since 1970, affording us the opportunity to collect data of public health interest on a large proportion of these women (Potterat, Rothenberg, & Bross, 1979; Potterat, Woodhouse, Muth, & Muth, 1990). Of special interest to us is information that can suggest interventions to reduce the burden of prostitution-associated morbidity: substance abuse and sexually transmissible disease (Centers for Disease Control and Prevention, 1992).

Although the association of prostitution with sexual and substance abuse in the United States has long been noted (Goldstein, 1979), data on the chronology of sexual and drug abuse milestones in the lives of prostitute women are inconsistently reported and derived from convenience samples. Goldstein estimated that 40% to 85% of prostitutes were drug users; in addition, he reported that among higher class prostitute women, prostitution tended to precede substance abuse, while in lower class prostitutes, the reverse tended to be true (Goldstein, 1979). James, alluding to data from an unpublished 1976 manuscript, stated that “Prostitution follows addiction in 48% of the subjects, precedes it in 38%; and is simultaneous in 14%” (James, 1977).

Silbert and colleagues interviewed 200 street prostitutes in San Francisco and reported that mean age at coital debut was 13.5 years, 16.1 years for prostitution debut (13 years for juvenile prostitutes and 18 for adults), and 16.9 years for entry into regular prostitution activity (Silbert & Pines, 1982). They subsequently reported that nearly all (95%) in their sample provided histories of illicit drug use. Of these, more than half (55%) admitted to drug use prior to prostitution entry and 30% subsequent to (15% concurrent with) prostitution entry, although ages at substance abuse milestones were not reported (Silbert, Pines, & Lynch, 1982).
Three fifths (61%) of Silbert's sample reported childhood sexual abuse. This study was replicated in Canada using the same questionnaire on 45 former prostitutes and 45 age-matched controls from the population of Calgary (Bagley & Young, 1987). Their results were similar to those of Silbert's group but, surprisingly, substance abuse data on their subjects were not included in the report.

More recently, a study of 51 substance-abusing women working as prostitutes in London during the early 1990s investigated the temporal association between heroin addiction and prostitution (Gossop, Powis, Griffiths, & Strang, 1994). They found that the average age at first heroin injection and first prostitution was similar (19.0 years for heroin vs. 19.2 years for prostitution) and that 44% had used heroin prior to prostitution entry, 26% subsequent to entry, and 30% at about the same time as entry. Regrettably, data on drug abuse other than heroin are incompletely reported.

Currently, there is little theory to guide our understanding of why such events occur in the order they do. The available data suggest considerable variation in the forces, both internal and external, that affect women's lives and move them toward drug use, drug injection, and prostitution (in some order). At least one pulp fiction version would have us believe that women are lured into prostitution by drugs and that the latter serves to maintain the former, but the available literature suggests that the true situation is more complex and heterogeneous.

Because information about the sequence, timing, and prevalence of sexual and drug abuse events in the lives of prostitute women is incomplete, and because we had access to a high proportion of the prostitute population in Colorado Springs, we undertook to survey prostitutes and compare findings with similar data solicited from women who were not prostitutes. Our expectation was that such information might yield etiologic cues about female prostitution and provide information for intervention efforts with both prostitutes who experience morbidity from substance abuse and STD and with women who are at risk of entering prostitution (Plummer, Potterat, Muth, Muth, & Darrow, 1996).

METHOD

Participants

Between August 1990 and December 1992, we attempted to survey all women in Colorado Springs known to us to have exchanged sex for money or drugs locally or elsewhere, either formerly or currently. Current prostitutes were defined as women who engaged in prostitution locally during the study interval; they were recruited from our STD Clinic and our HIV Counseling and Testing Site (CTS). These two facilities were the only public sites where women could receive free STD or HIV evaluation. The women visited these sites either voluntarily or as a consequence of arrest for prostitution (Potterat, Rothenberg, & Bross, 1979). All women at the STD Clinic or CTS were queried about having engaged in prostitution: the medical records of clients reporting such history were flagged.

Former and non-local prostitutes were defined as women not known to be currently engaging in prostitution and were recruited from a computer list of flagged records. Former prostitutes had worked in the Colorado Springs area at some time in the past; nonlocal prostitutes admitted to having engaged in prostitution elsewhere only. This list was cross-checked to identify former prostitutes suspected or known to be current residents by six outreach workers, whose mean duration of STD control employment in Colorado Springs exceeded ten years. Available information permitted classification of prostitutes into those who had ever worked as prostitutes locally and those who had not, and into those who claimed never to have been a street prostitute and those who did. In addition, prostitutes were classified as evanescent (peripatetic women working locally for a few weeks per year, such as military paydays), short-term (working for a few months), and long-term (working for years) residents (Potterat, Woodhouse, Muth, & Muth, 1990).

We recruited comparison women from the STD Clinic, offering participation to all consecutively presenting women during July, September, and November 1992. A previous study (Potterat, Phillips, Rothenberg, & Darrow, 1985), as well as more recent unreported experience, indicated sociodemographic similarities between nonprostitute and prostitute women in our STD Clinic population.

Survey Instrument

The questionnaire consisted of nine short questions that elicited the age at which critical sex- and drug-related events occurred and several additional demographic and behavioral questions. These questions permitted delineation of the following milestones: first penile penetration anywhere in their body, with or without consent; first consensual sex; regular consensual sex; first noninjectable drug use exclusive of alcohol; regular noninjectable drug use exclusive of alcohol; first injectable drug use; regular injectable drug use; first prostitution, defined as exchange of sex for drugs or money; and regular prostitution. For each milestone, we asked the exact age in years: We did not ask the respondent to tell us, in the event of identical ages at two milestones, which came first. Questions related to a first event are easily understood by both interviewer and respondent; questions about regular events are more difficult to define systematically. We offered respondents the guidance that a regular activity referred to the time when they began to engage in the behavior as a routine part of their lives, recognizing that there would be some interresponder variability in the interpretation of such questions. To gauge response reliability, a convenience sample of prostitutes was subsequently resurveyed, beginning in mid-1991. Because survey questions did not consist of items routinely asked in either the STD Clinic or CTS setting, client informed consent for participation was sought; no remuneration was offered. Questionnaires were administered by experienced STD/HIV interviewers and afforded the same level of confidentiality protection as routine
STD/HIV medical or epidemiologic records (viz., immunity from any discovery process).

Data Analysis

Data were collected on questionnaires without personal identifiers and analyzed using SAS (SAS Institute, Inc., 1985). We used nonparametric methods and exploratory data analytic techniques (Mosteller & Rourke, 1973; Tukey, 1977) to assess the order of events and the differences in events among groups. For each event, we examined the distribution of ages at which the event occurred for prostitutes compared to STD Clinic women. We analyzed comparison women who reported regular drug use (N = 93) and those who did not (N = 313) separately. We compared the distribution of ages at different events for these groups to determine if there were significant differences in the timing of events. We compared the timing of events for the whole population, and examined the difference in years between events for prostitutes versus comparison women. Finally, within the prostitute group we compared the differences in age distributions at critical events for three ethnic groups (Black, Hispanic, and White). For comparison of two distributions (e.g., ages at time of first sexual encounter and time of first drug use, or ages for prostitutes versus comparisons at the time of regular sexual activity), we used the Wilcoxon rank sum test. For comparison of three distributions (e.g., ages at entry into prostitution for Black, Hispanic, and White women), we used the Kruskal-Wallis test (Mosteller & Rourke, 1973; SAS Institute, 1985). We displayed the differences among ethnic groups using a modified box plot that showed the median value by ethnic group, and indicated the variability by including 25th and 75th percentiles and the upper and lower “whiskers” (the points determined by adding 1.5 times the interquartile distance to the 75th percentile, and subtracting it from the 25th percentile). For several analyses, we also report mean ages for comparison purposes. In the bulk of the analysis, however, we have relied on nonparametric methods because preliminary analysis revealed the nonnormal nature of the underlying distributions, and because the nonparametric approach provides a more direct comparison of the actual distributions than do parametric measures of central tendency.

We examined the multivariate influence of birth cohort (1946-55, 1956-65, 1966-75), prostitution status, current age, ethnicity, and a history of sexual abuse as a child on the sequence of milestones using logistic regression. In all these analyses, data for current and former prostitutes were pooled, since analysis of the timing and sequence of sexual, drug abuse, and prostitution events were nearly identical for these two groups.

RESULTS

Participation

Of the 158 current prostitutes observed during the study interval, 141 (89%) were surveyed, nine (6%) refused to participate, and eight (6%) were not surveyed because of administrative oversight. Of 317 former prostitutes in our computerized clinic records, 100 were located, of whom 96 were surveyed and four refused participation, yielding a total of 237 participants. One hundred ninety-three were classified as street prostitutes, 24 as nonstreet (e.g., massage parlor, hotel, or escort service setting) prostitutes, and 20 as unknown; 186 were classified as local and 51 as non-local prostitutes.

Among the 475 eligible comparison women, 68 (14%) were not surveyed: 10 (2%) refused to participate and 58 (12%) were missed because of administrative oversight. These 68 nonsurveyed comparison women did not differ as a group with regard to age and ethnicity from enrolled women.

Group Comparison

On average, prostitute women were older (mean age, 28.5 years) than comparison women (25.1 years), but most of this difference was attributable to the inclusion of former prostitutes who were older (mean age, 31.8 years) than current prostitutes (mean age, 26.3 years). The groups were similar with regard to ethnic composition: 63.7% of prostitutes were White, 9.7% were Hispanic, 23.2% were African-American and 3.4% were Other, compared to 59.2, 10.1, 24.1, and 6.6% respectively.

More important differences were noted in behavioral characteristics. Among prostitutes, 32% reported prepubertal sexual contact (defined as penile penetration prior to age 11) compared to 13% of comparisons. There was a striking difference in the proportion of women who engaged in illicit drug use, with 86% of prostitutes reporting a history of regular use versus 23% for comparisons; one-half of the women in the prostitute group had used injectable drugs (60% of former and 43% of current prostitutes) compared to 4% in the comparison group (14 women, of whom 8 reported regular use. One of these 8 entered prostitution in late 1993). Ninety-four percent of prostitutes who injected drugs reported noninjectable drug use before prostitution, and 75% of prostitutes who injected drugs reported doing so before beginning prostitution. There was no particular association of childhood sexual abuse with early age at sexual debut: Of those reporting early sexual abuse, 32% of prostitutes and 37% of comparison women reported early consensual sexual activity. Overall, 66% of prostitutes reported using non-1V drugs regularly before entry into prostitution, 18% reported that these events occurred at the same time, and 17% reported using drugs regularly after becoming a prostitute.

There was a substantial difference in reported levels of sexual activity by comparison women who reported regular drug use (N = 93) versus those who did not (N = 313). Those who used drugs regularly reported an average of 4.0 sexual partners in the previous 12 months and 14.7 lifetime sexual partners; those who did not reported 2.7 and 10.6 partners respectively (p < 0.001). Only one of the 93 drug-using comparison women was known to have entered prostitution as of the end of 1997.
Table 1. Comparison of Percentage of Participants Who Experienced a Drug-related or Sex-related Event at Age 10–14.

<table>
<thead>
<tr>
<th>Sex- or Drug-related event</th>
<th>Birth Cohort</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1946-55</td>
<td>1956-65</td>
<td>1966-75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N=39</td>
<td>N=118</td>
<td>N=95</td>
<td>N=78</td>
<td>N=238</td>
</tr>
<tr>
<td>First penile penetration</td>
<td>35.9</td>
<td>42.4</td>
<td>31.2</td>
<td>42.3</td>
<td></td>
</tr>
<tr>
<td>First consensual sex</td>
<td>28.2</td>
<td>40.7</td>
<td>41.0</td>
<td>27.0</td>
<td></td>
</tr>
<tr>
<td>First used recreational drugs (noninjecting)</td>
<td>31.6</td>
<td>42.2</td>
<td>33.8</td>
<td>32.1</td>
<td></td>
</tr>
<tr>
<td>Regular sexual contact</td>
<td>15.4</td>
<td>22.0</td>
<td>26.9</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Regularly used recreational drugs (noninjecting)</td>
<td>17.1</td>
<td>31.4</td>
<td>29.0</td>
<td>17.8</td>
<td></td>
</tr>
<tr>
<td>First used IV drugs</td>
<td>4.0</td>
<td>5.7</td>
<td>9.1</td>
<td>25.0*</td>
<td></td>
</tr>
<tr>
<td>Regularly used IV drugs</td>
<td>4.4</td>
<td>7.7</td>
<td>5.9</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Ever traded sex for money or drugs</td>
<td>5.1</td>
<td>7.6</td>
<td>10.3</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Regularly traded sex for money or drugs</td>
<td>2.8</td>
<td>3.9</td>
<td>9.0</td>
<td>—</td>
<td></td>
</tr>
</tbody>
</table>

*The denominators in these groups were 5, 5, and 4 respectively.

There was a striking difference in the proportion of prostitutes who experienced any life event at ages 10–14 years compared to the STD Clinic patients. For example, among the oldest group of women (the birth cohort born between 1946 and 1955), 35.9% of prostitutes experienced first penile penetration when 10–14 years old, compared to 8.1% of the STD Clinic patients. Similarly, 31.6% of prostitutes first used noninjecting drugs at this age compared to 4.4% of the STD Clinic patients, and 15.4% of prostitutes reported regular sexual activity compared to none of the STD Clinic patients (see Table 1). These differences were similar in direction but attenuated in magnitude for the cohort born between 1956 and 1965. For the youngest group (born between 1966 and 1975), some of these differences were reversed. For example, 42.3% of comparison women experienced first penile penetration at ages 10–14 years, compared to 31.2% of prostitutes (see Table 1).

**Milestones**

There were significant differences in the timing (but not the ordering) of early events in the lives of prostitutes compared to women who did not report regular drug use (see Table 2). For this latter group, first penile penetration had a median occurrence 2 years later than for prostitutes, and first consensual sex, first drug use, and regular sexual activity all occurred a year later.

In contrast, the ordering of sex- and drug-related events was identical for prostitutes and comparison women who reported regular drug use (see Table 3). First sexual experience and first consensual sex preceded first noninjectable drug use, and regular sexual activity preceded regular noninjectable or injectable drug use. Among the prostitutes, regular drug use of both types preceded the onset of prostitution. The ages at which these events took place differed slightly for the two groups, but there was no detectable statistical difference in the distributions of ages at each event for the two groups. Thus, although comparison women were much less likely to participate in some of these behaviors, such as using injectable drugs, there was no apparent difference in the distribution of ages at which these behaviors took place. The mean or median age at critical events, as ordered in Table 3, rises monotonically for both groups.

Table 2. Ordering of Sex- and Drug-related Events for All Prostitutes and for Comparison Women Who Did Not Report Regular Drug Use.

<table>
<thead>
<tr>
<th>EVENTS</th>
<th>Prostitutes&lt;sup&gt;a&lt;/sup&gt;</th>
<th>STD Clinic Comparisons&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age</td>
<td>Age</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>mean n</td>
</tr>
<tr>
<td></td>
<td></td>
<td>median n</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mean n</td>
</tr>
<tr>
<td></td>
<td></td>
<td>median n</td>
</tr>
<tr>
<td>First penile penetration</td>
<td>237</td>
<td>13.0</td>
</tr>
<tr>
<td>First consensual sex</td>
<td>237</td>
<td>15.0</td>
</tr>
<tr>
<td>First drug use</td>
<td>237</td>
<td>15.7</td>
</tr>
<tr>
<td>Regular sexual activity</td>
<td>220</td>
<td>16.2</td>
</tr>
</tbody>
</table>

<sup>a</sup>n = 237, <sup>b</sup>n = 313.

Note: The clinic comparisons in this table include only those women who deny going on to regular drug use. The prostitute cohort differs slightly from the group in Table 3 since the latter includes only those (n = 203) who did go on to regular drug use. Using the Wilcoxon rank sum test, the distribution of ages for prostitutes and this STD Clinic comparison group are all significantly different (p < 0.001).
Table 3. Ordering of Sex- and Drug-related Events for Participants Who Reported Regular Drug Use.

<table>
<thead>
<tr>
<th>EVENTS</th>
<th>Prostitutes&lt;sup&gt;a&lt;/sup&gt;</th>
<th>STD Clinic Comparisons&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>mean</td>
</tr>
<tr>
<td>First penile penetration</td>
<td>203</td>
<td>13.1</td>
</tr>
<tr>
<td>First consensual sex</td>
<td>203</td>
<td>14.9</td>
</tr>
<tr>
<td>First drug use</td>
<td>203</td>
<td>15.5</td>
</tr>
<tr>
<td>Regular sexual activity</td>
<td>203</td>
<td>16.2</td>
</tr>
<tr>
<td>Regular drug use</td>
<td>203</td>
<td>17.5</td>
</tr>
<tr>
<td>First IV drug use</td>
<td>116</td>
<td>19.9</td>
</tr>
<tr>
<td>Regular IV drug use</td>
<td>92</td>
<td>20.2</td>
</tr>
<tr>
<td>First prostitution</td>
<td>203</td>
<td>20.5</td>
</tr>
<tr>
<td>Regular prostitution</td>
<td>178</td>
<td>21.4</td>
</tr>
</tbody>
</table>

<sup>a</sup>n = 203. <sup>b</sup>n = 93.

Note: Using the Wilcoxon rank sum test, the distribution of ages for prostitutes and STD Clinic comparison women at each critical event are not significantly different.

Such trends in the timing of events are further corroborated by comparing the difference in years between events for both populations of regular drug-users (see Table 4). For nonprostitution behaviors, differences in age distribution between critical events were the same in prostitutes and the STD Clinic comparisons, with the exception of the time between first IV drug use and first sexual exposure (see first four rows and first footnote of Table 4). For the total group (prostitutes plus comparisons), there was no difference in the time of first initiation into non-IV drugs and sex, but regular IV drug use occurred substantially after regular sexual activity was initiated (median of 3 years for prostitutes and 2 years for STD Clinic comparisons). For prostitutes, both initiation into prostitution and habitual activity occurred substantially after initiation to non-IV drugs and their regular use. The distributions of differences for first prostitution and both first and regular IV drug use were not significant, however, indicating that they appear to occur at about the same time for many women despite variation in the age of such occurrence. The distribution of ages at regular prostitution and regular IV drug use were significantly different, and indicated that the latter preceded the former.

**Ethnic Comparisons**

Among the prostitutes, several differences between ethnic groups emerged. Nonstreet prostitutes were more likely to be White (92%) than were street prostitutes (59%). White prostitutes were, in general, more likely to report injecting drugs and to have experienced nonconsensual prepubertal sex than Black or Hispanic prostitutes. The distribution of ages at critical events (see

Figure 1. Distribution of Ages at Critical Events for Black (B), Hispanic (H), and White (W) Women
Table 4. Differences in Time Between Sex- and Drug-related Events for Participants Who Reported Regular Drug Use.

<table>
<thead>
<tr>
<th>DIFFERENCES</th>
<th>Prostitutes&lt;sup&gt;a&lt;/sup&gt;</th>
<th>STD Clinic Comparisons&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Significance of difference between the two events, regardless of group&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>median</td>
<td>mean</td>
</tr>
<tr>
<td>First drug use - first sex</td>
<td>0.5</td>
<td>0</td>
<td>0.2</td>
</tr>
<tr>
<td>Regular drug use - regular sex</td>
<td>1.1</td>
<td>0</td>
<td>0.8</td>
</tr>
<tr>
<td>First IV drug use - first sex</td>
<td>4.7</td>
<td>3</td>
<td>3.3</td>
</tr>
<tr>
<td>Regular IV drug use - regular sex</td>
<td>4.0</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>First prostitution - first drug use</td>
<td>4.8</td>
<td>4</td>
<td>—</td>
</tr>
<tr>
<td>First prostitution - regular drug use</td>
<td>2.9</td>
<td>2</td>
<td>—</td>
</tr>
<tr>
<td>First prostitution - first IV drug use</td>
<td>1.0</td>
<td>0</td>
<td>—</td>
</tr>
<tr>
<td>First prostitution - regular IV drug use</td>
<td>0.5</td>
<td>0</td>
<td>—</td>
</tr>
<tr>
<td>Regular prostitution - first drug use</td>
<td>5.6</td>
<td>5</td>
<td>—</td>
</tr>
<tr>
<td>Regular prostitution - regular drug use</td>
<td>3.7</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>Regular prostitution - first IV drug use</td>
<td>2.3</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Regular prostitution - regular IV drug use</td>
<td>1.6</td>
<td>1</td>
<td>—</td>
</tr>
</tbody>
</table>

Note. Using the Wilcoxon rank sum test, the distribution of the differences of ages at sex events and drug events did not differ significantly between prostitutes and STD Clinic comparison women who used drugs regularly, except for the difference in the time between first IV drug use and first sex (p < 0.01).

<sup>a</sup>n = 203.<sup>b</sup>n = 93.<sup>c</sup>The Wilcoxon rank sum test is used here to test the difference of age distributions at the two critical events, both groups combined. A normal approximation to the 2-sample test is used, and the p-value is reported as an approximation for very small values and as an exact value for those nearer 0.05.

Figure 1) demonstrates considerable heterogeneity. Age at first consensual sex has the narrowest distribution, and ages at first and regular IV drug use have the widest. Among the three groups the distribution of ages at first penile penetration, regular sexual activity, first drug use, and at regular drug use are significantly different (see footnote to Figure 1). The three groups also differed significantly in the distribution of age differences between the time of first and regular non-IV drug use, and between the time of first and regular prostitution (all values significant [p < 0.01] by the Kruskal-Wallis test; data not shown), suggesting that there may be ethnic differences in the timing, but not the order, of these events.

Within-Group Heterogeneity

Though comparison of distributions provides a clear pattern of the ordering of these life events for groups, the patterns for individuals were not uniform. For example, among prostitutes the exact sequence of regular sexual activity, regular drug use, regular IV drug use, and, finally, prostitution, occurred in 47%. The same sequence for first events occurred in 41%. Excluding prostitution, this sequence for regular events (sex-drugs-IV drugs) occurred in 61%, and for first events in 57%. There was greater heterogeneity in the pattern of early events—first sexual activity, first drug use, regular sexual activity, regular drug use—for which only 30% of respondents exhibited that exact sequence. A substantial portion of the heterogeneity consisted of a reordering of two adjacent events in the sequence, and no other sequence accounted for more than 3% of the patterns.

Multivariate Analyses

Logistic regression analyses were used to determine the influence of demographic and behavioral factors on the ordering of events. In numerous models, White ethnicity was the only consistently significant factor associated with the use of drugs, either injectable or noninjectable, before sexual debut (data not shown). No factors, including birth cohort, were statistically significant in comparing former and current prostitutes with regard to the ordering of events.

Reproducibility of Results

Nearly two fifths (92/237) of participating prostitutes were resurveyed a year later (mean = 347 days; median & mode = 368). Resurvey bias was related to residential stability: Of resurveyed prostitutes 6% were classified as evanescent, 31% as short-term, and 64% as long-term residents (compared to 20%, 35%, and 45% respectively for the cohort; p < 0.001). For the nine questions of major interest, on average, 43.2% of those resurveyed gave an identical answer, 69.7% gave an answer that was ± 1 year of the original answer, and 83.5% were within 2 years of the original answer.

DISCUSSION

Public health interventions to reduce the commonly associated burdens of drug abuse and STD in prostitutes may benefit from a clearer understanding of the sequence, timing, and prevalence of sexual and drug abuse events in
their lives. This cross-sectional study of 237 prostitute women and 407 comparisons suggests a complex link between illicit drug use and subsequent entry into prostitution in Colorado Springs. Such links have been explored in prior studies. We found that 66% of prostitutes had used drugs before entering into prostitution, 18% began both behaviors at the same time, and 17% used drugs after beginning to work as a prostitute. In James’s (1977) study, the respective proportions were 48%, 14%, and 38%; in Silbert et al., (1982) they were 55%, 15%, and 30%; and in Gossop et al. (1994), they were 44%, 30%, and 26%. Though these studies are not entirely comparable, the qualitative impression from all is that the use of drugs precedes, or at times coincides with, the onset of prostitution.

One advantage of our study is the relatively high proportion of prostitute women who were recruited. Findings reported in the prostitution literature are generally derived from convenience samples and few studies use comparisons (Earls & David, 1989). In a recent analysis, we showed that visits by prostitute women to our clinics during two decades of observation probably represent about 80% of women who engage in prostitution locally (Potterat, Woodhouse, Muth, & Muth, 1990). Assuming that this historical trend (1970-1988) remained constant during the current study interval (1990-1992), we estimate that the 90% of prostitute women who participated in our survey represent about 70% (.90 x .80) of working prostitutes in Colorado Springs. This is probably a conservative estimate because prostitution surveillance intensified during the study interval as a consequence of our efforts to describe the socioeconomic networks of prostitute women and injectable-drug users in Colorado Springs (Woodhouse, et al., 1994).

Limitations of this study include our survey instrument’s simplicity, its reliance on self-reported information, and the framing of certain survey questions. For example, our instrument did not capture information about non-consensual prepubertal sex if it occurred after initiation of consensual sex. In addition, the heterogeneity of individual responses may have been misestimated because the age at each milestone was obtained to the nearest year, and we did not ask respondents to break ties. We felt that our survey’s ease of administration and acceptability would probably have been compromised by the additional questions required. Complex, time-consuming questionnaires may not succeed without adequate remuneration in populations of drug-addicted prostitute women.

Empirical demonstration of the sequence of events is necessary for establishment of a causal link between drug use and prostitution. The representative (rather than strictly random) nature of our sample and the low frequency of behaviors such as injection drug use among comparisons impedes causal inference, but these data demonstrate the pervasiveness of substance abuse among prostitutes, and the strong temporal sequence of this series of critical events. The observed pervasiveness of substance abuse in prostitutes is underestimated, since our survey did not solicit data on alcohol abuse. These data are in keeping with prior research that asserts the primacy of psychological factors in the decision to enter prostitution (De Schamphelaere, 1990; Potterat, Phillips, Rothenberg, & Darrow, 1985; Simon, Morse, Osofsky, Balson, & Gaumer, 1992). If substance abuse is indeed a marker of psychological morbidity (Michels & Marzuk, 1993), and if, as our study consistently indicates, substance abuse generally precedes entry into prostitution, the data set the stage for the further development of theory that can link psychological factors and other factors in a causal pathway to prostitution.

Our data also tend to support observers who question the role of childhood sexual abuse as a direct causal variable in the pathway to prostitution (Branigan & Fleischman, 1989; Seng, 1989; Simons & Whitbeck, 1991). Admittedly, our childhood sexual abuse data represent a conservative estimate since we did not solicit detailed histories of sexual abuse. As emphasized by Wyatt and Peters (1986), “... differences in definitions of child sexual abuse do have an impact on prevalence rates” (p. 237). Nonetheless, our data suggest that a subset of our nonprostitute comparison women experienced early sexual activity and subsequent critical events with the same order and timing as did the prostitutes. Other comparison women, who did not go on to regular drug use, reported significantly later sexual exposure than these other two groups. In addition, the comparison women with early sexual exposure and regular drug use reported substantially more sexual activity than the other comparison women. The existence of distinctive groups of nonprostitute women suggests that there is considerable heterogeneity among women at risk, and that early sexual exposure is not a straightforward predictor of prostitution.

Our sense from review of the literature is that the dominant research paradigm views prostitutes as victims of external circumstances, particularly abusive environments, and then seeks to obtain supportive data. Such a paradigm profoundly affects data interpretation. Although investigators generally recognize the pervasiveness of substance abuse in samples of prostitute women, most concentrate on whether drug abuse or prostitution came first, or on environmental determinants of substance abuse rather than on implications of the pervasiveness itself (that is, the psychological antecedents of abuse). In one otherwise well-thought-out and well-conducted study, the investigators seem so convinced of the primacy of childhood sexual abuse in predicting prostitution that data on substance abuse by their study subjects were ignored (Bagley & Young, 1987). Our findings support those who advocate a paradigm shift from focusing principally on external factors to exploring internal determinants of entry into prostitution. This is tantamount to extending the chain of causality further back and implies that external factors may play an intermediate (precipitating) rather than directly causal role.

Our convenience samples of former, non-local, and resurveyed prostitutes produced consistent survey results. The inherent difficulties of historical recall, the pervasiveness of substance abuse in respondents, and the disorder
inherent in the lives of many led us to expect a lower
response concordance than we observed. Our data call
into question King Lear’s admonition: “He’s mad that
trusts in the tameness of a wolf, a horse’s health, a boy’s
love, or a whore’s oath.” (Shakespeare, 1606). The con-
sistency we observed gives us confidence in the validity
of our observations, and suggests that they may have some
generalizability.

Our initial inquiry (Potterat, Phillips, Rothenberg, &
Darrow, 1985) into the antecedents of female prostitution
in Colorado Springs suggested that while social factors
may set the stage for prostitution, the script to become a
prostitute may be written by psychological factors. The
present study reinforces that impression. Current ortho-
doxy posits psychological morbidity as an antecedent to
substance abuse (Michels & Marzuk, 1993), which is
itself, as we show, antecedent to prostitution. Future
inquiries into prostitution should be data driven explo-
rations of the etiologic relationships between psychologi-
cal morbidity, early sexual debut, substance abuse, and
prostitution. Insights derived from such studies may guide
public health interventions to attenuate the adverse physi-
cal and social sequelae of prostitution.

REFERENCES

abuse: A controlled study. Canadian Journal of Community Mental
Health, 6, 5–26.

health: Policing delinquency or treating pathology? Canadian Journal of
Law and Society, 4, 77–98.

Centers for Disease Control and Prevention (1992). Street outreach for

De Schamphelaere, D. (1990). MMP characteristics of professional prostitu-
tutes: A cross-cultural replication. Journal of Personality Assessment, 54,
343–350.

Annuals of Sex Research, 2, 5–28.

Ebbinghaus, H. (1909). Abriss der psychologie [Summary of psychology],
Leipzig, Germany: Veit & Co Press.

Books.

Addiction, 89, 961–970.

(Ed.), Street Ethnography: Selected Studies of Crime and Drug Use in
Publications.


Addison Wesley.

Plummer, L., Potterat, J. J., Muth, S. E., Muth, J. B., & Darrow, W. W.
(1996). Providing support and assistance for low-income or homeless
women. Journal of the American Medical Association, 276,
1874–1875.

titutes: Epidemiologic and legal implications. Sexually Transmitted
Diseases, 6, 58–63.

becoming a prostitute: An exploratory case-comparison study. The

Estimating the prevalence and career longevity of prostitute women. The


& Society, 13, 471–500.


Simons, P. M., Morse, E. V., Osofsky, H. J., Balson, P. M., & Gaumer, H. R.
(1992). Psychological characteristics of a sample of male street prostitu-
tutes. Archives of Sexual Behavior, 21, 33–44.

Simons, R. L., & Whiteman, B. L. (1991) Sexual abuse as a precursor to pros-
titution and victimization among adolescent and adult homeless women.
Journal of Family Issues, 12, 361–379.


Woodhouse, D. E., Rothenberg, R. B., Potterat, J. J., Darrow, W. W.,
Muth, S. Q., Klovdhall, A. S., Zimmerman, H. P., Rogers, H. L.,
social network of heterosexuals at high risk for HIV infection. AIDS,
8, 1331–1336.


Manuscript accepted February 17, 1998