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Lee Robins' studies of heroin use among US Vietnam veterans

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ABSTRACT

The work of Robins and her colleagues on heroin addiction among Vietnam veterans sets out in microcosm many of the key factors that play out in the development and maintenance of substance addiction beyond the pharmacology of the drug: price, availability, the process of delivery of the addictive substance, availability of other substances, social norms, education and life circumstances. Robins' studies found high rates of heroin use (34%) and symptoms of heroin dependence (20%) among US soldiers while serving in Vietnam. In the first year after returning to the United States only 1% became re-addicted to heroin, although 10% tried the drug after their return. Like other seminal studies, this work needs to be read in the original, because relying upon secondary interpretations risks being given a selectively edited version of their findings in service of varied policy and theoretical agendas.

Keywords Addiction, heroin, policy, relapse, Robins, Vietnam.

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INTRODUCTION

The seminal research by Lee Robins and her colleagues on heroin use among US enlisted men who served in Vietnam are cited widely and have been used to argue for [1] and against very different models of addiction [2] and both to support [3] and question the need to prohibit heroin use [4]. We argue here that these papers should be required reading for anyone working in the field of addiction, and that anyone wanting to use these findings cannot rely upon secondary accounts but must study the original papers carefully.

HOW DID THE ROBINS STUDY COME TO BE CONDUCTED?

Crimes attributed to heroin-addicted individuals became a major public concern in the large cities in the Eastern United States in the late 1960s and early 1970s [5–9]. In 1971, President Richard Nixon expressed concern that this domestic heroin problem would be greatly increased after an army of heroin-addicted Vietnam veterans returned to the United States [9–11]. His concern was prompted by two Congressmen who returned from Vietnam in 1971 claiming that 10–15% of servicemen were addicted to heroin [12]. This report, which appeared when the United States was withdrawing 200 000 troops from Vietnam [9,10,13], raised the fear that a returning army of 'addicted veterans' would overwhelm the US addiction treatment system and resort to crime to maintain their heroin addiction [9,14].

In June 1971 President Nixon created a new executive agency, the Special Action Office for Drug Abuse Prevention, and appointed Jerome Jaffe as the nation's first 'drug czar' to advise him on how to respond to heroin use among Vietnam veterans [9,10]. Jaffe proposed that the military screen the urine of all servicemen for opiates before they returned to the United States. All soldiers who provided an opiate-positive urine would have to undergo detoxification that would delay their return to the United States by 2 weeks, but they would not otherwise be punished [9,10]. Jaffe's aims were: to obtain better data on the prevalence of opiate use in Vietnam; to provide a swift and certain but modest punishment that would deter men from using opiates before their departure; and to encourage soldiers to break their heroin habits before they returned home [10]. Nixon ensured that Jaffe had the necessary resources and political authority to implement the policy [9,13].

Jaffe also commissioned a follow-up study of heroin use among a sample of these men while in Vietnam and after they returned to the United States. He recruited Lee Robins for the task, as she had carried out previously two longitudinal studies of antisocial behavior and drug use in American youth, including a study of heroin use among inner-city African American males [15].

The study design

Robins and colleagues selected a random sample of 450 enlisted men who returned to the United States in September 1971. They also obtained a sample of 450 men who screened positive for opiates in the same month [14]. These men were interviewed 8–12 months after their return to the United States about their drug use before, during and after their service in Vietnam. The interviewers also requested a urine sample at the end of the interview. The researchers interviewed 95% of the sample and obtained a urine sample from 92% of the men [14,16,17]. Robins and colleagues were also able to access army records to validate self-reported drug use and disciplinary offences in the military. There was generally good agreement between urinalysis results and self-reported drug use [18].

Later, Robins and colleagues conducted a 3-year follow-up of a subset of the random sample and a matched control group of draft-eligible men of the same age who had not gone to Vietnam [19–21]. This study assessed how drug use in veterans compared with age peers who did not go to Vietnam, and how the drug use of the veterans had changed in the 3 years since they had served in Vietnam.

WHAT DID ROBINS FIND?

Heroin use in Vietnam

Just fewer than half (43%) of the random sample of veterans reported opiate use in Vietnam in the year before the study (38% used opium and 34% heroin) [14]. Heroin was of high purity and very cheap, so most often it was smoked in a cigarette (67%) or sniffed (24%), rather than injected (9%). Approximately 20% (46% of those who used an opiate in Vietnam) used heroin often enough and for long enough to experience symptoms of opiate withdrawal (e.g. sweats, irritability, trouble sleeping) for 2 days or more [14]. Injecting heroin use was most common among those men who used at least weekly for 9 months or more (40%). The men said that they used heroin to get high and to deal with boredom, homesickness and disturbed sleep [14]. Heroin was used generally when men were behind the lines or on leave, rather than in the field [22], so most used heroin less than daily [14].

Heroin use after Vietnam

The most surprising finding was the very low rate of heroin addiction reported by veterans in the 8–12 months after their return to the United States. Only 10% reported any heroin use, 2% reported using heroin more than weekly for more than a month and just fewer than 1% reported becoming re-addicted (a rate confirmed by urinalysis). This remained the case in the subsequent 2 years: only 2% were re-addicted at follow-up (although 5% had been addicted at some point in 3 years) (the key findings are summarized in the online Supporting information Appendix S1).

Robins asked why the veterans had not used heroin. It was not for lack of opportunity: most veterans reported that heroin was easy to obtain where they lived and a tenth had tried heroin after they returned. The main reasons for not using were a fear of becoming addicted, experiencing adverse health effects, being arrested and the strong disapproval of friends and family [14].

The men most likely to become addicted to heroin in Vietnam were those who had used opiates (usually cough syrups containing codeine) before serving in Vietnam. Opiate use was most common among men who had grown up in large US cities, were less well educated and had family histories of drug use, crime and delinquency [14,18,23]. These characteristics had predicted heroin use in Robins' US cohort studies [18]. Those most likely to use heroin after Vietnam were those with a history of opiate use and heavy use of other illicit drugs before Vietnam, and regular heroin use, especially by injection, and the regular use of amphetamines and barbiturates in Vietnam [14,18].

Other drug use in and after Vietnam

Cannabis was the most commonly used illicit drug in Vietnam, followed by amphetamines and barbiturates. Heroin users were heavy users of all these drugs. In contrast to heroin, the use of the other illicit drugs continued at similar rates after Vietnam.

The pattern of alcohol use changed in ways that probably reflected changes in its availability. Approximately one in four veterans reported heavy, symptomatic drinking before Vietnam, but this proportion declined to one in six in Vietnam. While in Vietnam, heavy drinkers were less likely to use heroin and heroin users tended to be light drinkers [24]. After the veterans' return to the United States, heavy drinking and alcohol-related problems increased as heroin use declined and heavy drinking increased among veterans who had used heroin in Vietnam [24,25].

How were these findings received?

The study findings were greeted initially with disbelief, because they conflicted with media portrayals of Vietnam veterans as an 'Addicted Army' [10,12]. They also clashed

with the dominant clinical view that heroin addiction was a chronic and intractable disorder. The latter view was derived from follow-up studies in the United States which showed that more than 90% of treated heroin addicts relapsed to heroin use within a year [26]. Some initial claims that the study was a cover-up were disarmed by Robins' explanation of the validity and integrity of the study and the failure of an investigative journalist to find any evidence of fraud [18]. The findings were also supported by smaller surveys of drug use among servicemen in Vietnam (e.g. [22]).

ROBINS' STUDY IN RETROSPECT

In 1993 Robins [18] lamented that her findings were often dismissed as applying only to a unique cohort of young American men who had been placed in an atypical social and historical situation that would never be replicated. One can concede that Robins' cohort was unique, but still recognize its relevance to drug policy. The most obvious of these is that the high rates of heroin use and addiction among US soldiers in Vietnam and the low rates of heroin use on their return to the United States can be explained by the extreme differences in the price, purity, availability and social acceptability of heroin use between Vietnam and the United States [3].

In Vietnam, heroin was of high purity and low price and was readily available. It was smoked easily and so did not need to be injected, overcoming a major barrier to initiating heroin use. A large group of young men, aged 19–20 years, were exposed to heroin at a time when a deeply divisive war was winding down; many soldiers rejected the authority of the military and wanted to avoid being 'the last soldier killed' [27]. Access to alcohol, by contrast, was limited, because many of these men were under the age of 21 (still the minimum drinking age in many states between 1971-84) and the Army only allowed enlisted men to drink beer [25].

This was the perfect combination of circumstances to increase heroin use. Even so, most heroin users in Vietnam did not use daily, very few used by injection and most used for fewer than 12 months. Their heroin smoking careers were therefore much shorter and less intense than the careers of heroin injectors in the United States, among whom rates of addiction and relapse were much higher.

The veterans' situation after their return to the United States differed in all these important respects. Heroin was available, but purity was less than 10% in the United States as against 90% in Vietnam. Its price was much higher in the United States; namely, $20 for a street bag of 10% purity [28] as against $6 a day in Vietnam for pure heroin. This made injection the most efficient way to use heroin in the United States. Injection was the least popular route in Vietnam and the route used by veterans who tried heroin in Vietnam and after their return. The returning veterans reported that they were fearful of becoming addicted to heroin, being arrested or experiencing serious adverse health effects [14,19].

In these circumstances, it is not surprising that the men who became re-addicted after their return had used opiates and other illicit drugs before going to Vietnam, and had injected heroin in Vietnam [18,23]. The very small proportion of the re-addicted veterans who sought treatment had the same high rates of relapse as heroin addicts treated in Lexington, Kentucky [18,29].

The role of higher price, lower availability and stronger social disapproval in discouraging heroin use is suggested by the veterans' continued use of other illicit drugs after their return. Cannabis was used at high rates after the men returned as it was widely available and not as socially disapproved of as heroin, because by the mid-1970s the majority of young adults in the United States had used cannabis [30].

Heavy and problematic alcohol use was the other noteworthy pattern of drug use among returning Vietnam veterans. Three years after their return alcohol abuse was a major problem for more than a third of veterans, and especially among those who had used heroin in Vietnam [24,25]. It appeared that some heavy drinkers who used heroin rather than alcohol in Vietnam reverted to heavy alcohol use after they returned [25].

Robins [31] argued that all epidemiological studies of drug use are expositions of the unique historical context in which they were conducted. They recruit participants whose drug use reflects what drugs were available at what price and purity, their preferred routes of administration and the social attitudes towards drug use among peers and the broader community. She described her Vietnam study as a 'natural experiment' that provided 'an opportunity to learn what happens when first exposure to heroin occurs in a foreign and for many a frightening setting, without the deterrents of high prices, impure drugs, or the presence of a disapproving family' [14].

These historically unique circumstances of the Vietnam study represented a striking counterfactual to the circumstances under which heroin was used typically under prohibition in the United States. The individuals who were most likely to use heroin in the United States were those who were the most likely to become addicted in Vietnam in Robins' study; namely, poorly educated, socially disadvantaged youth who lived in large cities and came from families with a history of antisocial behavior and drug use.

Robins' study helps to understand other historical examples of populations of young adults who have been exposed to a large increase in the supply of very cheap and pure heroin that could be smoked. This happened in Australia in the early 1990s, when heroin use spread beyond its more traditional social ecological niche of

socially disadvantaged youth into the middle classes [32]. The ensuing heroin epidemic in the 1990s was also terminated by an abrupt reduction in heroin supply which happened at the end of 2000, the causes of which remain a matter of debate [33,34].

CONCLUSION

The work of Robins and her colleagues is deservedly considered to be seminal in the study of the epidemiology of heroin use. Despite being a study of a unique scenario, the study sets out in microcosm many of the key factors that play out in the development and maintenance of substance addiction beyond the pharmacology of the drug: price, availability, the route of administration of the addictive substance, the availability of other substances, social norms, education and life circumstances. Like other seminal studies, it needs to be read in the original, because relying upon secondary interpretations risks being given a selectively edited version of their findings in service of varied policy and theoretical agendas.

Declaration of interests

None.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix S1 Tables of key findings from the studies of Robins and colleagues.
Table S1 Heroin and other opiate use in Robins' Vietnam cohort (1–3).
Table S2 Other illicit drug use in Vietnam (1–3).
Table S3 Alcohol use (5).
Table S4 Alcohol problems after return (6).