Urban crack users in The Netherlands: Prevalence, characteristics, criminality and potential for new treatments

Oteo Pérez, A.

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# 1.
# Introduction

## 1.1. BACKGROUND

The Netherlands was among the first European countries where crack cocaine (crack) use appeared and spread among 'scenes' of hard drug users (Grund, Adriaans & Kaplan, 1991; Nabben & Korf, 1999).The Netherlands was also one of the first countries to criminalise cocaine, in 1919 (De Kort & Korf, 1992). Being a form of cocaine, the possession and sale of crack are illegal. Even though most professionals who work with crack users are familiar with crack (often called 'base coke' in the Netherlands), there is a gap in scientific knowledge with respect to the size of the user population and the characteristics of users.

Today, crack is the primary drug for a large proportion of opiate users, however no definitive pharmacological treatment has appeared yet (Fischer et al., 2015; Nuijten, Blanken, van den Brink & Hendriks, 2011). With regard to 'problem drug users'[1] or 'high risk drug users,' the Dutch addiction treatment system has a strong focus on low threshold care, originally designed to respond to the 1970s, 1980s and 1990s heroin epidemic, and opiate substitution is a cornerstone of this system (Blanken et al., 2010; van Brussel, 1995; van Laar & van Ooyen-Houben, 2009). To meet the needs of crack users, the Dutch addiction care system offers a broad array of treatment options and harm reduction measures, for example user rooms. However, while methadone is available for heroin users (and to a lesser extent heroin on medical prescription), there is not yet such a substitute or medicine for crack users. The current lack of specific pharmacological treatment could keep a substantial number of crack dependent users away from the care system. More and better knowledge of the population of frequent crack users is a prerequisite for improving the reach of the care system and reducing harm. Therefore, in this thesis we will estimate the number of frequent crack users in the three largest Dutch cities (Amsterdam, Rotterdam and The Hague), assess their patterns of use, socio-demographic characteristics, problems associated with crack use, such as drug dealing and other criminality, social networks, and contacts with institutions. Also, we will explore the potential benefit of adding pharmacotherapy to the current treatment options for crack dependence.

### 1.1.1. Crack vs. Base Coke

Crack cocaine is the freebase form of cocaine, a substance found naturally in the coca plant (i.e. erythroxylum coca). In its freebase form, the vaporizing point at $90^o$ C is much lower than the burning point, Consequently, and unlike cocaine hydrochloride (i.e. powder cocaine), that is burned immediately, crack cocaine can be heated and inhaled. When smoked, the drug is absorbed by the bloodstream much faster than when used intra-nasally, and reaches the brain in a few seconds, provoking a 'high' that is similar to that of snorted cocaine but faster and more intense (Hatsukami & Fischman, 1996). This high, characterized by feelings of euphoria, alertness, energy and loss of appetite, lasts around 5-10 minutes, after which users often feel depressed, uncomfortable or anxious (Estroff, 2008). This phase, caused by low dopamine levels in the brain, is known as the 'crash' and it is often followed by cravings for another dose. A typical pattern of crack use is the 'binge,' in which the drug is

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[1] Problem Drug use is defined by the EMCDDA (http://www.emcdda.europa.eu/stats07/PDU/methods) as 'injecting drug use or long duration or regular use of opioids, cocaine and/or amphetamines.' Crack use is generally considered under this category.

used compulsively trying to restore the original high, sometimes neglecting sleep and personal care (Reinarman, Waldorf & Murphy, 1997a)

The most common method to transform powder cocaine into crack is to add ammonia or sodium bicarbonate (baking soda) and water, and heat the mixture until the cocaine alkaloid is detached from the hydrochloride forming freebase cocaine (Strang & Edwards, 1989). The final product is usually impure and can be washed by heating it in water. This 'washed' product is considered the authentic freebase cocaine, while the product containing sodium bicarbonate and /or other adulterants is known as crack, allegedly because of the cracking sound of these impurities when burned. In the Netherlands, crack is usually smoked in small pipes (e.g. sold as hash pipes), although some users smoke it on tin foil (similar to 'chasing the dragon' in the case of heroin) or using self-fabricated pipes.

There is a great deal of confusion among Dutch users regarding the meaning of the word 'crack.' Freebase cocaine is commonly known in the Netherlands as 'base coke,' 'gekookte coke' (cooked coke) 'wit' (white), or 'bori' ('cooked' in Surinamese). The act of using the drug is called 'basen' (to base). Crack is usually understood as a lower quality kind of freebase cocaine. It is considered more harmful and is often associated with dramatic media reports (Reinarman, Waldorf & Murphy, 1997) and for many only used in the U.S. but not in the Netherlands. For some users crack is even thought to be another drug (e.g. methamphetamine), while others think it is pure cocaine. In practice, in the Netherlands base coke is being processed at the last stages of the distribution chain, in a similar way to what is known as crack (Gruter, 2005). Nevertheless, most users still consider crack as a different product (Blanken, Barendregt & Zuidmulder, 1999). On the other hand, internationally, scholars usually refer to freebase as 'crack,' regardless of its street name, although opinions about what each term exactly means might differ (Blanken et al., 1999; EMCDDA, 2007; Grund et al., 1991; Nabben & Korf, 1999). In this thesis, the term 'crack' will be used to refer to any form of freebase cocaine intended for smoking, regardless of its preparation method.

## 1.1.2. The Appearance of Crack

Most likely, in case of the first type of 'smoking cocaine,' it was not cocaine powder, but 'basuco,' the Spanish name for coca paste. This method originated in the early 1970s in Latin American coca-producing countries and consists of smoking an intermediate product of the cocaine-making process (UNODC, 2013). 'Freebasing' became popular during the 1970s in the U.S., as a way to obtain a purer product and more intense effects. But the big expansion came with a simple change in the cooking process. Instead of the dangerous preparation with solvents like ether or ammonia, a similar product could be easily obtained - and adulterated - by using baking soda (sodium bicarbonate). This method apparently originated in the Caribbean, where shipments of coca paste were being made in the 1980s. Locals learned to process this paste with baking soda and rum and later brought this technique to the U.S., where it became used to transform cocaine hydrochloride (for a more detailed narration on the socio-economic circumstances around the emergence of crack, see Agar, 2003). The resulting rocks could be broken into small pieces and sold in small quantities for a cheap price. Retail sellers found this business model profitable, since these sales often resulted in customers coming back for more. This new distribution system also opened doors for entrepreneurs who could start with small investments and make quick profits by selling

small quantities. As Agar (2003) noted *"This shift in structure – from hierarchical to flat and modular – was a major change in the drug business that arrived with crack, one that has never been reversed" (p.17)*

The use of crack began to spread in the United States in the mid 1980s, mainly in deprived neighborhoods and disproportionately affecting the inner city Afro-American population. News about a 'crack epidemic' and crack-related violence and criminality occupied headlines for many years (Reinarman, Waldorf & Murphy, 1997). It has been feared that a similar phenomenon could happen in Europe but, until now, such a crack epidemic has not been observed. Crack cocaine is, however, a major component in many European cities' drug problem (Connolly, Foran, Donovan, Carew & Long, 2008; EMCDDA, 2007; Ilse, Prinzleve, Zurhold & Haasen, 2006). During the 1990s, major increases in crack use have been observed in Europe (Haasen et al., 2004), as a shift in the drug use patterns of heroin users, very closely related to the shift from injecting heroin to smoking it or 'chasing' (Barrio, De la Fuente, Royuela, Díaz & Rodríguez-Artalejo, 1998; Grund et al., 1991; Haasen et al., 2004; Nabben & Korf, 1999).

## 1.1.3. Arrival in the Netherlands

The Netherlands, a country with the biggest harbor in Europe, a cross point for international air traffic, and with historical relations with cocaine exporting countries, has a long standing market for this drug (De Kort & Korf, 1992). Crack use began taking place quite early compared to other European countries. This was due to various factors. First, the shift from injecting heroin to inhaling was adopted earlier. The ritual of 'chasing the dragon' ('chinezen' in Dutch) originated in Asia (Strang, Griffiths & Gossop, 1997) and consists of placing some heroin on a piece of tinfoil and heating it with a lighter from underneath. The vapors from the melting heroin are inhaled with a straw. This technique was introduced in the Netherlands by criminal organizations from China that imported heroin and familiarised young Surinamese immigrants with it, who adopted this form of use when becoming customers. Many of them would also become retail sellers (van Brussel, 1995). Native Dutch and other Western heroin users originally injected more often, but contact with other users contributed to the dispersion of smoking rituals throughout these groups. Additionally, the heroin that entered the Netherlands in the 1980s shifted from coming from South East Asia to South West Asia. Heroin from this region entered the country in base form, which is more suitable for heating and inhaling than the heroin in hydrochloride form coming from South East Asia (Grund, 1993). Finally, Dutch authorities opted for a pragmatic approach to the heroin epidemic from the 1980s, providing care and harm reduction measures for hard drug users rather than repression at the street level, contributing to the emergence of a consumer market with a reasonable quality and price for heroin (Grund, 1993). These factors resulted in an unusually low prevalence of injecting drug use (IDU) among heroin users, as was observed when comparing the lifetime prevalence of IDU among foreign drug users living in Amsterdam during the early 1990s. While only one quarter of those who started their heroin use in Amsterdam did this intravenously, 2 thirds of those who started in their own country injected the drug. (Korf & Poppel, 1986) This low IDU prevalence facilitated the inhaled route among hard drug users when cocaine gained popularity from the mid 1980s onwards. During this decade, Suriname, a Dutch colony until 1975, and the Netherlands Antilles (e.g. Curaçao) became an important transit point for shipments from cocaine-producing countries

to the Netherlands. Many young immigrants from these (former) parts of the Netherlands in the Caribbean who already played a role in the distribution of heroin, quickly became distributors of cocaine. As stated before, the use of cocaine base seems to have had its origins in the Caribbean region. Some of these early Caribbean distributors could have imported the rituals and techniques to the Netherlands, where the inhaled route for heroin was already quite spread.

### 1.1.4. The Retail Market and Urban Nuisance

When free-base cocaine made appearance in the Netherlands in the 1980s it was mostly bought as cocaine hydrochloride and then cooked to its base form by users themselves. Dealing houses or apartments, called 'addresses,' were popular in those times and it was often possible for users to cook their cocaine there (Grund et al., 1991). In the early 1990s the drug started being sold in small balls ('bolletjes' in Dutch) of ready-to-use crack by drug users to other drug users who could not access powder cocaine for not having access to these addresses. During the early 1990s, dealing and consuming crack on the streets was very common, with public areas like the surroundings of train stations as major meeting points for marginalized drug users (Blanken et al., 1999; Nabben & Korf, 1999). Crack balls were often sold together with heroin balls, and integrated into the use patterns of heroin users (Blanken et al., 1999).

The national government and local authorities, especially in large cities such as Amsterdam, Rotterdam and The Hague took measures to combat drug-related nuisance, e.g. police actions against street dealing, the designation of 'safety risk areas,' the closing of dealing 'addresses' (Nabben & Korf, 1999), and an increase in video surveillance (CCTV) in the streets. Repressive actions were accompanied by socially integrating and harm reduction measures, like the *'Plan to tackle homelessness'* (Ministerie van Volksgezondheid Welzijn en Sport, 2006). Under this plan, coordination between police, social services, housing and drug services were strengthened and more long-stay residences for drug users were provided, allowing supervised drug use in many of them (Barendregt, 2008). Not in the least, the use of mobile phones has contributed to more flexibility and less visibility of transactions. Drug dealers were among the first to incorporate this working tool (Barendregt, 2006), making appointments with customers and delivering the drugs at home or at fixed meeting points. These new developments have contributed to an almost disappearance of the so called 'street scene.'

### 1.1.5. Current Situation: Prevalence of Crack Use

According to the United Nations Office on Drugs and Crime (UNODC), worldwide about 14 to 21 million individuals have used cocaine in the past year (0.4 percent annual prevalence), with highest prevalence rates in North and South America (1.8 and 1.2 percent respectively), Oceania (1.5 percent) and Central and Western Europe (1 percent). The prevalence estimate for last month cocaine use in Europe represents about 0.5 % of the adult population or about 1.5 million individuals. Last year prevalence of crack use in North America is 0.4%, and has been decreasing during the last decade but less rapidly than cocaine powder use. A notoriety about South America is that much of cocaine use is taking place through the smoked route, with crack, basuco or similar preparations (UNODC, 2014). Crack use in Europe seems to occur mainly among marginalised and disadvantaged groups such as sex workers and

problem opioid users, and some countries report it among specific ethnic minorities (e.g. France, Netherlands, United Kingdom). Around 29% of clients in outpatient treatment for cocaine smoke the drug, compared to 65% who snort it and 6% who inject it (EMCDDA, 2007).

There are no estimates for crack use in the European Union. National crack cocaine estimates are only available for the United Kingdom (England), where there were an estimated 170,627 crack cocaine users in 2010/11, which corresponds to 0.49% (0.48–0.51) of the population aged 15–64, and Italy, with an estimate of 89,953 crack users, which corresponds to a prevalence rate of 0.23% (1.13–3.52). Regional estimates using indirect methods have also been made in these two countries, with prevalence rates in regions within England ranging from 0.14% (0.28%-4.26%) to 1.69% (1.47%-1.98%) in 2006/07 and in Italy, ranging from 0.15% (0.05-0.25%) to 0.30% (0.15%-0.45% in 2013) in 2013 (EMCDDA, 2015).

In The Netherlands (population 16.8 million), recent cocaine use is around the average of European countries, with 55,000 last year users (1.2%) (Van Rooij, Schoenmakers & Van De Mheen, 2011). There are no national prevalence rates for crack use. A study conducted in 2010 about 'problematic drug users' estimated the number of opiate users (including those who use crack) at 17,700 (17,300-18,100) and the number of crack users who do not use opiates at 12,400 (10,300-15,600) (Cruts & Van Laar, 2010). Apart from some qualitative research, with a strong focus on the most problematic segment of the crack using population (Blanken et al., 1999; Boekhout van Solinge, 2001; Coumans, 2005; Nabben & Korf, 1999), little is known about crack users in the Netherlands, including frequent or dependent users. There is neither a reliable estimate of the number of frequent crack users, nor a representative profile in terms of age, gender, ethnicity, drug use patterns, associated problems such as involvement in crime, and treatment and service utilization.

Given the lack of available treatment options, a substantial number of crack users might have no, or only incidental, treatment contacts. Hence, the number of treatment seeking crack users is likely to represent only a small portion of the crack user population, and the nature and extent of this underestimation – in terms of age groups, gender, ethnicity, drug use patterns, and associated problems – is unknown.

## 1.2. RATIONALE, AIM AND RESEARCH QUESTIONS

As stated before, for many years the Dutch drug care system has a strong focus on harm reduction, with low-threshold facilities being predominantly centered around providing substitution treatment for opiate users. Although heroin use is still far from having disappeared and these measures remain needed, an important challenge is to adapt the Dutch drug care system to the current situation, in which smoking crack, whether or not in combination with the use of opiates, has become the norm rather than the exception. Therefore, there is a strong need for an innovative approach towards crack users, in particular the most problematic and vulnerable group in urban areas.

Parting from this necessity, the research project 'Prevalence, treatment needs and new pharmacotherapeutical options for crack users in the Netherlands' was created, consisting of two sub-projects: a social-epidemiological research and a series of clinical trials

testing three potentially promising medications for the treatment of crack dependent users (Nuijten, Blanken, van den Brink & Hendriks, 2011). Both sub-projects were conducted in the three largest cities in the Netherlands: Amsterdam, The Hague and Rotterdam (with at the time of data-collection for the epidemiological research (2009-2011) approx. 770,000, 590,000 and 490,000 residents respectively, representing about 11% of the national population). The full study design was approved by the ethical committee of the Faculty of Medicine of the University of Amsterdam.

This thesis refers to the social-epidemiological sub-project. The aim was to estimate the size of the urban population of frequent crack users (in these three cities), to assess their socio-demographic characteristics and patterns of use, and to determine problems associated with crack use, including the involvement of crack users in drug-related crime and drug dealing, and to gain insight into their initial interest and willingness to participate in pharmacological treatments with new, potentially efficacious medications for cocaine dependence. The aim was translated into the following five research questions, each being specified in subsequent chapters.

1. What are the socio-demographic characteristics and patterns of use of urban frequent crack users in the Netherlands? Do different sampling methods yield different profiles of crack users?
2. What is the prevalence of frequent crack use in the three largest cities in the Netherlands?
3. To what extent and how are (types of) frequent crack users involved in drug dealing?
4. To what extent and how are (types of) frequent crack users involved in drug-related crime?
5. To what extent are (types of) frequent crack users interested and willing to participate in pharmacological treatments with new, potentially efficacious medications for cocaine dependence?

## 1.3. DATA AND METHODS

Crack users can be considered a 'hard-to-reach population.' This term is given to populations that are too difficult or expensive to sample through traditional methods (e.g. general population surveys) due to their small size, stigmatization or clandestinity. As an alternative, we conducted a survey among two randomized samples of frequent crack users in institutions - one in opiate substitution treatment (ST) and the other one and in user rooms (UR) – and a sample recruited through respondent-driven sampling (RDS). The latter is a modified form of snowball –or chain referral– sampling. With RDS, under certain conditions, also parameters can be calculated of such a population as if they had been obtained from a probabilistic sample (Heckathorn, 2002). Although widely used in research among hard-to-reach populations, including drug users, RDS had never before been applied to sample crack users as a specific population. For all three surveys, inclusion criteria were: being a resident in the city area under study, speaking Dutch, being at least18 years old and currently (last 30 days) using crack at least two days per week. Respondents signed an

informed consent form before being interviewed face-to-face with a structured questionnaire which lasted 30–45 minutes.

**Figure 1.** RDS recruitment chains in Amsterdam by gender and involvement in drug dealing
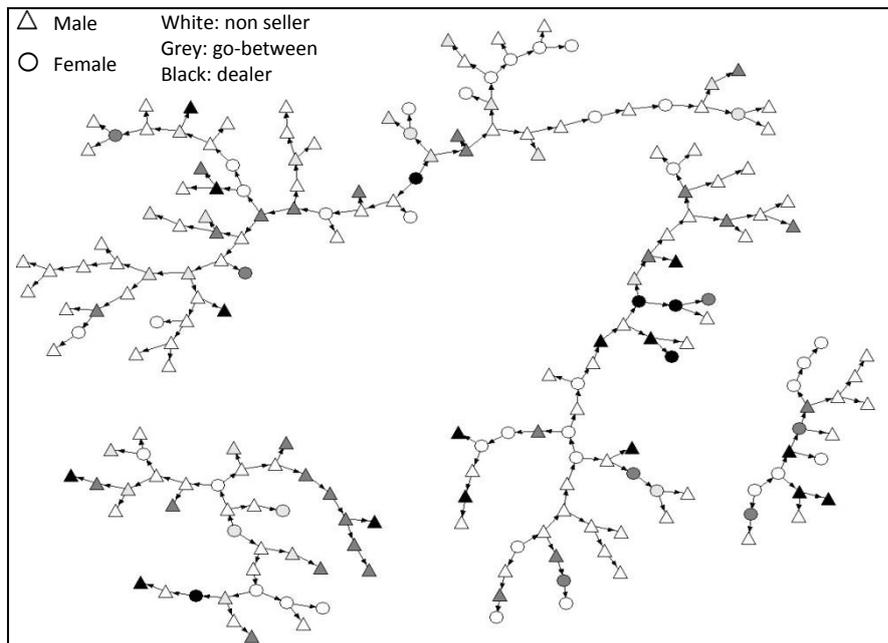


The surveys were conducted consecutively during a 6-month period in each city, over the course of two years in total (from March 2009 to January 2011). A total number of 1,039 unique frequent crack users inside and outside institutional settings were recruited, with 536 respondents from RDS 407, from ST and 233 from UR. Given that both institutional populations were not mutually exclusive, and RDS was targeted at both users in and outside institutions, in principle respondents could participate in more than one survey. This explains why the total number of interviews (n= 1,176) was higher than the total number of unique respondents. It also explains why the number of interviews per city (477 in Amsterdam, 374 in Rotterdam, and 325 in The Hague) amounted to more than the number of unique respondents (again 1,176 and 1,039, respectively).

The different profiles resulting from each of the three samples (RDS, ST and UR) were compared, as will be shown in chapter 2, and in chapters 4, 5, and 6 all three samples were merged to obtain a larger sample that would provide more statistical power in our analyses.In chapter 3, in order to estimate the prevalence of frequent crack use (or: number of frequent crack users) we also used data from registration lists of crack using clients in substitution treatment (ST) and user rooms (UR) in each city.

## 1.4. OUTLINE

In *Chapter 2* we will describe in more detail the methodology of the survey. Although widely used in, for example, HIV surveillance among hard to reach populations (Johnston & Sabin, 2010), RDS is still in developmental state and has never before been applied to sample crack users as a specific population. We will compare the three sampling methods, and assess whether sampling through RDS yields a different profile of frequent crack users than

through random samples in the two institutional settings: low threshold substitution treatment (ST) and user rooms (UR). Demographic characteristics, drug use and institutional contact between the three types of samples will be compared for each city and aggregated.

In *Chapter 3* an indirect estimation method known as capture-recapture will be applied to estimate the size of the population of frequent crack users in each of the three cities under study. This method uses registration lists and counts the number of overlapping cases between them to make an estimate of the population, including the part that has not been recorded. The inclusion of more than two samples allows for correction of potential dependencies between the samples by incorporating interaction terms in a log-linear model (Buster, 2001; Fienberg, 1972; Frischer et al., 1991). The present study will include three samples of frequent crack users for each city: the respondent-driven sample (RDS) and two registration lists of crack users obtained from institutions (ST and UR). Compliance with necessary assumptions for correct estimation and possible causes for interactions between samples will be discussed.

*Chapter 4* will explore the nature and key characteristics of the retail crack market from the perspective of users. More specifically, the first objective is to describe the drug buying behaviour of crack users. The second objective is to explore to which extent crack users are involved as drug sellers, and whether and how user-sellers can be differentiated from non-selling users. In recent years it has become clear that the classical notion of a dichotomy in drug supply versus demand is often too simplistic (Jacinto, Duterte, Sales & Murphy, 2008; Sales & Murphy, 2007). The applicability of the concept of 'social supplier,' i.e., user-sellers providing drugs for friends and acquaintances, usually as a way to cover expenses for their own use (Potter, 2009) among crack users will be explored, as this concept has usually been studied with regard to cannabis and 'party drugs' (Coomber & Turnbull, 2007; Jacinto et al., 2008; Sales & Murphy, 2007), but minimally with hard drugs such as crack (Coomber & Moyle, 2014; Kerr et al., 2008). For this matter, users who define themselves as 'dealers' will be compared to those who define themselves as 'go-betweens.' The final objective is to explore whether further differentiation of user-sellers exists by classifying user-sellers according to their degree of involvement in the drug trade into different types that emerge from cluster analysis.

In *Chapter 5* we will assess the involvement of urban frequent crack users and search for empirical evidence for drug-crime relationships and for different types of criminally involved crack users. Crack use has often been associated with criminality, with several studies finding large percentages of crack users with criminal records and high illegal incomes (Bennett & Holloway, 2009; Golub, 2004; van Laar et al., 2012). Drug-related crime has increasingly been defined and theoretically also more specified by using Goldstein's (1985) tripartite conceptual framework, which distinguishes three forms in which drug can lead to violence, and more widely to crime (Carpentier, 2007): The psychopharmacological model (crimes are committed under the influence of a substance or due to its chronic use), the economic-compulsive model (crimes are committed in order to obtain money or drugs to support drug use) and the systemic model (drug use is embedded in an existing violent subculture within the system of drug distribution). In this chapter, our first objective will be to assess which factors, derived from the economic-compulsive model (Goldstein, 1985), and

lifestyle (Walters, 1994) and life-course (Moffitt, 1993) theories, are related to current involvement in crime among frequent crack users and to what extent. The second objective will explore to what extent crack users specialize in crime, and which factors are related to specialization in specific types of crime, namely drug selling, property crimes, and violent crimes.

In *Chapter 6* the desire to reduce or quit crack use and attitude towards pharmacotherapy both inside and outside treatment will be studied and we will explore the extent and profile of the potential added reach of pharmacotherapy for this sample of crack users. To date, the only registered treatment option for crack dependence is psychosocial therapy, among which cognitive behavioral therapy, motivational interviewing and contingency management (EMCDDA, 2014). However, these interventions generally show moderate results at best in resolving the chronic, relapsing nature of stimulant dependence (Dutra et al., 2008; Knapp, Soares, Farrel & Lima, 2007; Shearer, 2007). Adding pharmacotherapy to the existing drug care system might increase treatment retention and might also broaden general treatment reach in attracting groups of crack users wishing to quit or reduce their use but currently unwilling to ask for professional help. In this chapter the following questions will be investigated: 1) To what extent could pharmacotherapy increase reach of treatment, 2) To what extent could pharmacotherapy reach a different group of crack users than currently available treatment, and 3) To what extent could pharmacotherapy reach a specific subgroup of crack users currently out of treatment reach?

Finally, in *Chapter 7* the findings of chapters 2-6 will be integrated in the discussion and conclusion, followed by an English (*Chapter 8*) and Dutch (*Chapter 9*) summary.

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