



UMEÅ UNIVERSITY

# Treatment repeaters

Re-entry in care for clients with  
substance use disorder within the  
Swedish addiction treatment system

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*I'm on the highway to hell.*

*Scott, Young & Young*

## List of original articles

This thesis is based on the following articles:

1. Grahn, R., Chassler, D., & Lundgren, L. (2014). Repeated addiction treatment use in Sweden: A national register database study. *Substance use & misuse*, 49(13), 1764-1773.
2. Grahn, R., Lundgren, L. M., Chassler, D., & Padyab, M. (2015). Repeated entries to the Swedish addiction compulsory care system: A national register database study. *Evaluation and program planning*, 49, 163-171.
3. Padyab, M., Grahn, R., & Lundgren, L. (2015). Drop-out from the Swedish addiction compulsory care system. *Evaluation and program planning*, 49, 178-184.
4. Grahn, R., Padyab, M., & Lundgren, L. The importance of risky psychosocial childhood for repeated addiction compulsory care as an adult. Manuscript.

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# Abstract

**Background:** According to the regulations contained in the Social Services Act (SFS 2001:453), Swedish social services have a legal responsibility to provide support, care, and treatment for individuals with substance use problems. This law mandate those who are responsible to provide treatment to motivate drug users to actively seek treatment on a voluntary basis, ensuring an end to their dependence on drugs. This approach of a possible ‘cure’ to substance use disorder conflicts with the results of current research. Studies have shown that although the treatment system largely focuses on promoting abstinence, about two-thirds of client’s relapse into substance use within one year after completing treatment. This dissertation focuses broadly on clients who repeatedly enter and use treatment for substance use disorders in the Swedish addiction treatment system. The fundamental problem considered is that many individuals with substance use disorder use treatment many times.

**Aim:** The aim of this thesis is to examine and identify the population groups who are repeated treatment users of the Swedish treatment system for substance use disorder, including both the voluntary treatment system and the mandatory treatment system.

**Methods:** This thesis was based on three national level databases. Study I was based on an ASI database and studies II-IV were based on DOK and KIA databases originated from The National Board of Institutional Care (Statens institutionsstyrelse, or SiS) and Death Registry from The National Board of Health and Welfare. The analysis method used for study I was a linear regression model. A logistic regression model was applied to answer the research question for study II, and to respond to study III, Cox proportional hazards regression modeling was utilized. The analysis methods used to respond to study IV included both a multivariable hierarchical logistic regression model and mediation analysis.

**Results:** The results showed that those clients with a higher degree of problems and problems in different areas of life also had an increased risk of having to be treated for substance use disorder repeatedly. Clients who were older, men, reported more years of polydrug and alcohol use to intoxication, reported more compulsory care episodes for substance use, had ever been charged with crime, had ever been in inpatient mental health treatment, and had a higher ASI mental health symptom composite score, were significantly more likely to report more voluntary addiction treatment episodes. The strongest significant association with the number of treatment episodes was

the number of compulsory treatment episodes for alcohol and drugs. Individuals who experienced prior compulsory care including mandatory treatment through LVU (law (1990:52)), been in prison, and had children mandated to out-of-home care, were more likely to have two or more entries in the compulsory care system for substance use disorder. In addition, this analysis showed that 59% of clients mandated to compulsory care dropped-out during their compulsory care episode, and that younger clients were significantly more likely to drop-out. Those who drop-out were significantly more likely to experience negative outcomes, i.e. additional sentence to compulsory care and higher risk of mortality. The hierarchal logistic regression model also identified that individuals with riskier childhood conditions were more likely to have had repeated entries to compulsory care for substance use disorder. After controlling for a history of mandated care as youth, all other family history variables were no longer significant. The indirect effects showed that a family history of substance use disorder and psychiatric problems are both associated with higher probability of institutional care as a child i.e. LVU, and that in turn, mandated childhood institutional care is related to repeated compulsory care intakes as an adult.

**Conclusion:** Individuals who use treatment for substance use disorder repeatedly have a higher degree of problems i.e. an exposed and problematic group of individuals characterized by problem in several different areas of life. Growing up in a home environment with unfavorable conditions, mandated care before the age of 18 (LVU), compulsory care for substance use disorder as an adult, children taken into out-of-home care, and crime are the factors that are primarily associated with repeated treatment for substance use. A change in the view of treatment for clients in need of repeated use of treatment seems important, and access to adapted continuous care efforts are crucial to counteract the risk of relapse after a treatment episode of voluntary or compulsory care. Further, it seems important to motivate the client to complete the compulsory care without any deviation, since this seems to have positive effects on their substance use disorder.

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Robert Grahn  
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# Abbreviations

ANOVA – Analysis of Variance

ASI – Addiction Severity Index

CI – Confidence Interval

DOK – Documentation in Addiction Treatment System

HR – Hazard Ratio

HSL – Hälso- och sjukvårdslagen (Health and Medical Service Act)

LVM – Lag om vård av missbrukare i vissa fall (The Care of Substance Abusers (Special Provisions) Act)

LVU – Lag med särskilda bestämmelser om vård av unga (The Care of Young Persons (Special Provisions) Act)

NIDA - National Institute on Drug Abuse

OR – Odds Ratio

SiS – Statens institutionsstyrelse (National Board of Institutional Care)

SoL – Socialtjänstlagen (Social Services Act)

SUD – Substance Use Disorder



# Introduction

This dissertation focuses broadly on clients who repeatedly enter and use treatment for substance use disorder in the Swedish addiction treatment system. The fundamental problem considered is that many individuals with substance use disorder use treatment many times, whereas others do not. Yet we know very little about what distinguishes these groups or if there are certain characteristics such as personal history, drug use, health, or family factors that differ between these groups. Studies have shown that although the treatment system largely focuses on promoting abstinence, about two thirds of the clients relapse into substance use within one year after completing treatment (Brandon, Vidrine & Litvin, 2007; Hendershot, Witkiewitz, George, & Marlatt, 2011). Risks associated with this relapse include disappointment and dejection with the clients, increases in health and social risks, and a negative impact on treatment personnel and relatives. The core of a long-term approach is to offer clients treatment and care that extend over time, all to increase the probability of an early response to a relapse.

According to the regulations contained in the Social Services Act (SFS 2001:453), social service programs/agencies have the main responsibility to provide support, care, and treatment for individuals who need assistance to solve their substance use problems. The Social Service Act, kap 5 § 9, also states that the social services at the local municipality should actively ensure that the client gets the help they need to get rid of their addiction. Hence, this text suggests that for everyone receiving services, substance use disorder is a problem that can be permanently solved

If a person has a serious problem where he or she is a danger to themselves or others, there are possibilities in Sweden to use compulsory care in order to help the client. The social services can apply for care through LVM (Care of Abusers (Special Provisions) Act (1988:870)) to the administrative court. The goal of LVM is to help the client become motivated to participate in treatment on a voluntary basis aimed at permanent changes in their life situation. And the voluntary interventions after the compulsory care episode, shall be provided by the local municipality.

The Swedish law on treatment regarding substance use disorder has been formulated so that those who are responsible to provide treatment should work actively to motivate individuals with substance use disorder to change and seek treatment on a voluntary basis. Further, the law seeks to help individuals improve their situation in a way that supports long-term recovery

from substance use disorder. Based on this, my curiosity was raised about the phenomenon of clients in treatment for substance use disorder that needed repeated episodes of drug treatment. I became curious and began to wonder about whether there are certain client groups characterized by returning to substance use disorder treatment repeatedly. In addition, my curiosity was raised regarding clients who are treatment repeaters in the voluntary addiction treatment system. I wondered if then there are also treatment repeaters in compulsory care for substance use disorder? One of my earliest hypotheses was that family background such as living in a family with substance use or mental health problems may be a key factor associated with long-term severe substance use and therefore repeated compulsory care episodes.

This curiosity is addressed through four different studies presented in this thesis. In order to carry out the research for these studies, I have had access to both registry and survey data in the form of longitudinal data that provided the opportunity to define treatment repeaters and different factors associated with repeated voluntary treatment and compulsory care for substance use disorder in Sweden and the Swedish addiction treatment system.

The first study that was carried out responds to the question: What are the factors associated with clients being treatment repeaters in the Swedish voluntary addiction treatment system?

The second study in this thesis took the issue of treatment repeaters within the Swedish addiction treatment system a step further and addressed the question of factors associated with being repeaters in the compulsory care system for substance use disorder.

The third study tested the question whether leaving (or dropping out) from care during a compulsory care episode is associated with a new compulsory care sentence later on (post drop-out), i.e. is care dropout associated with repeated compulsory treatment use?

The fourth research study in this thesis highlighted the role of family factors such as parental problems with substance use or mental health issues during the client's childhood were associated with being a treatment repeater in the compulsory care treatment system for substance use disorder as an adult.

In summary, this thesis hopes to highlight that individuals who seek and use treatment differ significantly in the extent to which they use and have access to treatment.

## **Aim**

The overall aims of this thesis are to examine and identify the population groups who are repeated treatment users of the Swedish treatment system for substance use disorder, including both the voluntary treatment system and the mandatory treatment system. The following research questions are addressed:

- What characterizes treatment repeaters with a substance use disorder? (Study 1).
- What are the patterns of repeated treatment utilization for substance use disorder? (Study 1).
- Are there certain sub-populations within the compulsory care system for substance use disorder that are repeated compulsory care users? (Study 2).
- What is the relationship between dropout and returning to compulsory care for a substance use disorder through a new court sentence? (Study 3).
- Are there significant associations between a risky psychosocial childhood and be repeatedly mandated to compulsory care for a substance use disorder as an adult? (Study 4).

# Research overview

## The etiology of addiction

Substance use disorder consists of a collection of complex traits with both individual and social factors (Sher, Grekin & Williams, 2005). Given these complexities, you can find differing views on the cause and how we understand and explain this phenomenon. There are biological, individual, and social perspectives on substance use disorder. How we perceive this phenomenon depends on which perspective you apply when trying to understand, explain, and analyze what substance use disorder is, what it means, and how we should relate to it to increase the possibility of providing help to individuals who are in need.

There is a considerable amount of evidence that parental history of substance use disorder is related to a substantially increased risk for offspring developing substance abuse problems (Cloninger, Bohman, & Sigvardsson, 1981). The familial nature of substance abuse problems and the transmission of the risk for substance abuse problems from parents to offspring are well documented. Family pedigree studies, twin studies, and adoption studies have all provided significant evidence of increased risk for developing substance use problems when a biological parent is affected (Goldman, Oroszi & Ducci, 2005; Ducci & Goldman, 2008; Goldman, 2009). The nature of the risk of substance use disorder has been separated into individual vulnerability and environmental exposure factors. The environmental factors may influence the initiation of drug use, the maintenance of drug use behavior, the development of drug use problems, treatment seeking behaviour, treatment outcomes, and the life course of substance use disorder by moderating or mediating the individual vulnerability (Schuckit, 2009).

Below, there will be a description regarding factors that research has shown to be important for both understanding the nature of addiction and trying to help clients undertake necessary changes.

### ***Individual factors***

#### *Heritability*

Various studies have found that there is a moderate-to-high degree of biological inheritance and genetic links to developing addiction. This has been established through the use of twin and adoption studies. Several adoption studies have shown that the risk adopted men had to develop a more severe addiction reflected the risk of their biological fathers, and not their adoptive parents (Cloninger, Bohman, & Sigvardsson, 1981). Similarly, the results of the various twin studies are remarkable in terms of their

identification of heredity as an indicator for developing an addiction. These studies estimate more than fifty percent of sets of twins each develop addiction (Goldman, Oroszi & Ducci, 2005; Ducci & Goldman, 2008; Goldman, 2009). Among individuals with alcoholism in their family, research found that almost half of children in the study were found to have a limited sensitivity to the effect of alcohol, meaning that they would need to drink more alcohol than normal to become affected or intoxicated. This vulnerability was also found for individuals who did not have alcoholism in their family, but to a significantly lower extent, about five to ten percent (Schuckit & Smith, 2011). Research has shown that people with so-called low alcohol response developed alcoholism four times more often than those with normal response (Schuckit et al., 2011).

### *Impulsivity*

Impulsivity is an important factor to take into account, as it has shown that it is a strong risk factor in the development of an addiction. High impulsivity is associated with increased risk of addiction. Research has shown that impulsivity in itself is a significant risk factor, not only when it comes to trying to use different drugs, but also in the case of escalating drug use and the transition from sporadic drug use to an addiction (de Wit, 2009). Research has found that most drugs provide increased impulsivity and risk taking (de Wit, 2009; Gilman, Smith, A. Ramchandani, Momenan & Hommer, 2012; Jentsch & Taylor, 1999). Moreover, regular drug use increases the risk of damage on the frontal lobe in the brain, which in turn increases impulsiveness even further (de Wit, 2009; Gilman et al., 2012). Research has also found when using animal models where rats got to self-administer cocaine, that the rats who were most impulsive ran the greatest risk of change into a compulsive use of substance (Belin, Mar, Dalley, Robbins & Everitt, 2008). Individuals living in a vulnerable social situation with a lack of protective family and social factors and who are impulsive are at an additional increased risk of developing drug use and an addiction. This may in turn make these individuals even more impulsive and thus end up in a cycle of addiction. These individuals are more likely to participate in sensation seeking, which is most apparent during youth and is characterized by a significant need to seek strong experiences even though they may be associated with both physical and social risks (Berglund & Fahlke, 2012).

### *Sensitization*

Anyone with a substance use disorder can stop using drugs and individuals with an addiction do this often and repeatedly (Heilig, 2015). To keep sober and stay away from drugs or at least minimize relapses are, in the long run, a real challenge. One big issue regarding the treatment of substance use disorder, is to understand what triggers relapse and how we can prevent this.

Re-exposing a person with addiction problems to a small amount of drugs is at the highest risk of triggering a relapse (Stewart, 2008). This phenomenon is called sensitization, defined as an increased sensitivity for the drug (Koob & Volkow, 2010). This can best be described as having old traces of memories left in the brain that are inactive but ready to be activated. Many times, relapse in substance use occurs as a result of exposure of priming doses of the drug, but also in response to other stimuli that seems to evoke these old memory traces (Heilig, 2015).

#### *Psychiatric disorder*

Comorbidity between substance use disorder and psychiatric disorder are well accepted. Actually, there is a very high likelihood that if a client has a substance use disorder, they also have a psychiatric disorder or vice versa (National Institute on Drug Abuse, 2014). Many studies investigating associations of substance use disorder with psychiatric disorder have focused on depression, because both substance use disorder and depression tend to run in families and frequently occur together (Swendsen & Merikangas, 2000). The common comorbidity of substance use disorder and depression has led to the hypothesis that people begin to use drugs to self-medicate their depression. However, several lines of evidence indicate that in most cases depression is a consequence of a substance use disorder (Berglund & Fahlke, 2012). In studies, the use of antidepressants to treat patients with both alcoholism and depression did not alter the course of alcoholism, however, abstinence from alcohol for such patients alleviated depression (Mason, Kocsis, Ritvo & Cutler 1996). Researchers have reached similar conclusions when investigating the association of alcoholism with other disorders such as anxiety disorder. This, in most patients with alcoholism, appears to be an independent disorder that does not develop secondary to psychiatric disorders. Sociopathy is the one psychiatric disorder that clearly contributes to the risk for a substance use disorder. There are several studies that have indicated that sociopathy is a predisposing factor for a substance use disorder (Cloninger, Sigvardsson & Bohman, 1988). Substance use disorder can be considered a symptom of underlying sociopathy, due to most sociopaths with a substance use disorder developed sociopathic symptoms before they started to develop an addiction (Vaillant, 1995).

#### **Social factors**

##### *Contextual influences*

Addiction often affects individuals who grow up and live in socially vulnerable environments where the level of education is low (Hjern, Arat & Vinnerljung, 2014; Sher, Grekin & Williams, 2005; Vaillant, 1995). In twin studies where data is gathered from many different sources, an environment

with low education levels contributes significantly to the development of addiction and accounts for about 40% of the risk (Goldman, Oroszi & Ducci, 2005; Ducci & Goldman, 2008; Goldman, 2009). The likelihood of young people's substance use, with earlier use and predict accelerated growth trends in use, are associated with inadequate support, negative parental behavior, parent and child conflict, irregular and inconsistent discipline and insufficient parenting, i.e. dysfunction in basic family processes (Clark, 2004). To grow up in an exposed and vulnerable social situation that includes high-risk family, that is, a social situation which includes parental and child conflicts, physical and sexual abuse, parental neglect, and parental separation and divorce, which all is part of the syndrome to grow up in a high-risk family. And young people who experience more negative life events have proved more likely to engage in substance use and show a sharper step in use over time (Conroy, Degenhardt, Mattick & Nelson, 2009; Nordström & Pape, 2010; Simpson & Miller, 2002). Family members who model substance use are associated with more substance use among adolescents and young adults. Parental conflict and abuse, coercive and overcontrolling parenting, lack of bonding and supervision, modeling, and childhood stressors associated with the family can have a long-term influence on substance use (Clark, 2004; Conroy, Degenhardt, Mattick & Nelson, 2009; Milne, Caspi, Harrington, Poulton, Rutter & Moffitt; 2009). Parental neglect and family conflict, disruption of family routines and family separation, and physical and sexual abuse, that is childhood stressors, play an important role in young adults and adult's substance use and in the social impact on transmission of substance use disorder. In summary, the factors that lead to and maintain substance use in adolescents and early adulthood indicate a problematic use of substances during the adult years.

#### *Peer and friends*

Peer and friend influences have consistently been considered risk factors for drug use and the development of addiction. Peers influence adolescents values, behaviors, attitudes and choice of other friends. Associating with deviant friends tends to promote the acceptance of deviant behaviors such as the use of drugs. The social network that includes individuals who use drugs tend to support and encourage the individual to continue to use drugs (Ennett, Bauman, Hussong, Faris, Foshee, Cai & DuRant, 2006). The composition of the social networks is important to understand. Drinkers tend to have moderated and heavy drinking social networks, drug users tend to be part of drug-using networks (Bauman & Ennett, 1996; Borsari & Carey, 2001). When an individual attempt to change drinking or drug use behaviors within the context of a network of drinking or drug-using friends, some of these friends may undermine change attempts. Friends and peer groups can affect the process of relapse, individuals whose friends or peers use

substances are at heightened risk of continuing to use drugs (Ennet et al., 2006). The main source of peer influence regarding substance use are direct modeling of substance use and perceived social norms. In general, individuals exposed to heavy-drinking models consume more alcohol than individuals exposed to light-drinking models or to no models at all. Active peer influence, which ranges from offering to get someone a drink to encouragement of drinking to commands to drink, is associated with more alcohol consumption. Perceived normative support for drinking, perceptions of other people's approval of drinking and of how much they drink, also predicts more alcohol use and alcohol-related problems. Friends alcohol consumption, positive norms and approval of drinking are consistently associated with heavier alcohol consumption and drinking problems among adults.

#### *Social related stressors*

There are studies showing that exposure to stress is an important factor behind drug seeking behavior and relapse. In both research and practice, there is a broad consensus that stress is an important factor leading to relapse for people with an addiction. Studies conducted by Shina and colleagues (2011) have shown that alcohol-dependent patients experience craving when exposed to stress and that the intensity that occurs in these experiments can predict the patient's risk of relapse after completed experiments. Furthermore, research shows differences between groups who have a substance use disorder compared to groups of individuals who do not have an addiction. Both groups react with discomfort and anxiety when exposed to stress, but it is only for the individuals with an addiction that this is accompanied by drug seeking behavior (Mulia, Schmidt, Bond, Jacobs & Korcha, 2008). Stress triggers drug-seeking behavior regardless of category of drug the individual is addicted to (Shina, 2008). Stress is crucial for relapses in drug-seeking behavior and most stressors that lead to relapses for individuals with dependence are of social nature. Common triggering factors are conflicts of various kinds with partners, friends, or at work. The more a person's life is dominated by drug-seeking behaviours, the greater the stress in relation to others in their social context such as their home, friendships, and work commitments. This gradually leads to social marginalization, a process that eventually becomes a vicious cycle for most patients with addiction problems. This can often lead to fragmentation in the family, unemployment and loss of other sources of social support (Brown, Vik, Patterson, Grant & Schuckit, 1995). The social stress is likely to increase the individual's drug-seeking behavior and trigger relapse. For many, this evil cycle can be difficult to break.

Based on this review of previous research regarding the etiology of addiction, there are clear indications that there are many different

underlying factors leading to addiction. In summary, addiction must be seen from a multi-factorial perspective and should be based on a bio-psycho-social approach when treatment is needed.

### **Treatment repeaters**

It is common that individuals with substance abuse or dependence make use of addiction treatment repeatedly. Studies suggest that repeated treatment use may be seen as a positive thing, demonstrating that more treatment episodes may improve outcomes for substance abusers, i.e. that there is a cumulative effect (Li, Evans & Hser, 2010). In a study by Weisner, Ray, Mertens, Satre and Moore (2003) examining whether short-term outcomes predict long-term outcomes for substance abusers, they found that for clients who were not abstinent at 6 months after leaving drug treatment, treatment readmission was a major predictor of being abstinent at 5 years. They interpret this as the need for repeated treatment use should not always be seen as a relapse and that repeated treatments might have a positive impact for clients (Weisner et al., 2003). A different study found that drug users who relapsed after an initial period of post-treatment abstinence were more likely to have had a history of more treatment episodes than drug users who remained abstinent after treatment and did not relapse (Dennis, Scott, Funk & Foss, 2005). Below is a short review of different factors research has shown may be important in relation to clients with a need to repeatedly access treatment for substance use disorders.

*Age:* research from the U.S. has found that age is associated with addiction treatment utilization and studies on treatment repeaters show that clients with a prior treatment history tend to be older than first time clients (Cacciola, Dugosh, Foltz, Leahy, & Stevens, 2005). Further, research shows that individuals who re-enter into treatment tend to start alcohol and drug abuse at an earlier age than those who do not re-enter back in addiction treatment (Dennis et al., 2005; Scott, Foss & Dennis, 2005). International research has found that age is associated with addiction treatment utilization (Lundgren, Amodeo, Ferguson & Davis, 2001; Saum, Hiller, Leigey, Inciardi & Surratt, 2007). For example, one study shows that clients with prior treatment experience are older than clients entering treatment for the first time (Cacciola et al., 2005). Other research indicates that clients who are treatment repeaters start their substance abuse at a younger age than individuals who have had only one addiction treatment episode (Dennis et al., 2005; Scott et al., 2005).

*Gender:* Studies regarding substance use disorder and addiction treatment by gender indicate that women and men differ in terms of both how and

when they start their addiction careers and subsequent substance abuse treatment trajectories (Grella, Scott & Foss, 2005). In their study, Grella with colleagues (2005) describe that women often begin with drug and alcohol use through personal relationships and at later ages compared to men, but treatment entry among women occurs after a shorter period of substance abuse, compared to men. Another study (Kang, Deren, & Colón, 2009) identified that women overall were more likely to participate in treatment than men. Treatment entry differs regarding women and men, where men often come in contact with addiction treatment through the health care system or criminal justice system, and women more often seek out treatment themselves or with the help of relatives and others in their social network (Grella et al., 2005). Addiction careers among men were significantly longer compared to females (Dennis et al., 2005). However, research shows that women are more likely to have a history of treatment readmissions (Grella, Hser & Hsieh, 2003).

*Race:* A national study in the U.S. about treatment utilization for substance use disorder and mental health found greater unmet need for all forms of treatment among African Americans relative to caucasians (Wells, Klap, Koike & Sherbourne, 2001). Ethnic minority status was related to having less access to treatment (Weisner & Matzger, 2002). Also, some research studies suggest that overall, immigrants have less access to addiction treatment (Leow, Goldstein & McGlinchy, 2006; National Institute on Drug Abuse (NIDA), 2003). Little research has been conducted in Sweden on race/ethnic disparities and national data sets generally do not collect data on race/ethnicity. However, one study has identified that second generation immigrants from non-Nordic countries are more likely to have a history of compulsory treatment than non-immigrant families (Lundgren, Brännström, Armelius, Chassler, Morén & Trocchio, 2012).

*Education:* Studies on the association between a client's level of education and use of addiction treatment show contradictory results. Some studies indicate that clients entering substance abuse treatment for the first time tend to be more educated than clients with long prior treatment histories (Cacciola et al., 2005). Another study found that a client's level of education had a positive association with treatment for substance use disorder (Lundgren et al., 2001). In other studies, it appears that clients with lower educational levels had more difficulty accessing treatment (Weisner & Matzger, 2002).

*Family and social relationships:* According to addiction treatment research in both Sweden and the U.S., having family supportive of the treatment recovery process is associated with a greater likelihood of positive treatment

outcomes (Trocchio, Chassler, Storbjörk, Delucchi, Witbrodt, & Lundgren, 2013; Von Greiff & Skogens, 2012). Higher levels of social support increase the likelihood that clients will stay in addiction treatment programs (Dobkin, De Civita, Paraherakis, & Gill, 2002). More positive treatment outcomes and the completion of treatment episodes for substance use disorder reduces the need for future treatment efforts. Alternatively, clients in vulnerable situations with low levels of social support increases the need for further treatment regarding substance use disorder.

*Employment:* In the U.S. and in other countries, employment may be seen as an important factor to get access to treatment (Saum et al., 2007) since employment often provides health insurance and thus, increases the availability of treatment. A Swedish study by Storbjörk and Room (2008) found that individuals with substance use disorder who are employed are more likely to have higher education levels and their own housing than individuals who are not employed. Education and employment seem to have a positive relation to the availability of treatment and individuals use of it.

*Psychiatric co-morbidity:* There is a significant body of research showing that clients in addiction treatment also have high levels of psychiatric problems. A study by Hser and colleagues (2004) suggests that clients with higher level of psychological severity had less successful treatment outcomes. Another study showed that clients who have both addiction and psychiatric problems have a greater risk of readmission to addiction treatment (Scott et al., 2005). Clients entering substance use treatment for the first time tend to have fewer mental health problems compared to clients with a prior treatment history (Cacciola et al., 2005). Other studies indicate that prior use of mental health services increases the likelihood of entering addiction treatment (Oser et al., 2011; Weisner & Matzger, 2002).

*Substance use severity:* in the U.S., greater severity of alcohol and drug use is often associated with repeated treatment use (Grella, Hser and Hsieh, 2003). A Swedish study by Grahn and colleagues (2014) showed that substance use severity is associated with repeated voluntary treatment use. Substance abusers who repeatedly seek treatment have been found to have more severe alcohol and drug problems compared to their counterparts. For example, Cacciola with colleagues (2005) found that substance abusers entering drug treatment programs who had a history of prior drug treatment reported more severe drug problems compared to those who entered drug treatment for the first time. Grella, Hser, and Hsieh (2003) identified that among DATOS cocaine users, individuals with higher service needs were more likely be treatment repeaters. Anglin and colleagues (1997; 1999) found that drug treatment repeaters had more severe levels of drug use, criminality, and use

of drugs by injection than clients with only one admission. Dennis and colleagues (2005) also found that drug users who were initially abstinent after completing drug treatment and then relapsed, were more likely to have had a history of more treatment episodes than drug users who remained abstinent after treatment and did not relapse. Further, it has been shown that drug treatment repeaters, compared to clients with only one admission, have more severe levels of drug use, criminality, and injection drug use (Anglin et al., 1997; Anglin et al., 1999). In Sweden, an earlier longitudinal retrospective/prospective study of medical inpatients admitted to the Magnus Huss Clinic in 1976-78 discovered that most patients had repeated contacts with specialized alcohol treatment, psychiatry, social services and somatic care. High treatment users had the most unfavorable social situation and the most severe alcohol-related problems (Damström-Thakker, 1990). A longitudinal analysis of heavy alcohol and drug abusers interviewed when treated for misuse problems by the health or social services systems of Stockholm County in 2000-2002, describes extensive prior treatment histories and continued high treatment utilization (Stenius, Ullman, Storbjörk & Nyberg, 2011).

*Criminal justice history:* In a U.S. study, Grella and colleagues (2003) found that clients with both a history of substance use and higher levels of criminal involvement at treatment entry were also more likely to have a history of repeated addiction treatment compared to their counterparts. A Swedish study (Grahn et al., 2014) concluded that clients with a criminal record reported significantly more voluntary addiction treatment episodes, compared to clients without a history of criminal involvement.

# Treatment, care and organisation

## Treatment or care

Conceptually, it is unclear what distinguishes treatment and care in the field of social work. The concept of treatment is a long-standing important and central issue in social work. The starting point of treatment is linked to the purpose and outcome of a certain intervention. Another important issue is which and what kind of intervention that can be defined as treatment. Tradition in social work is to use different kinds of interventions (i.e. treatment to correct social problems, which means to address and correct the deviation to what is considered normal and functional) (Johansson, 2004).

Treatment within the addiction care system is focused on helping individuals handle already established problems, i.e. efforts and methods used to help individuals get rid of their addiction, or reduce the negative consequences of ongoing addiction. The concept of treatment usually involves an individual and direct relationship between the provider and the client. Sometimes, especially in what is referred to as social or psychosocial treatment, it is presumed that there is an active interaction between the therapists, client and sometimes the client's environment (Bernler och Johnsson, 1988).

The concept of psychosocial treatment usually includes an approach where the problem to be addressed is considered to have psychological, social and relational causes. Psychosocial treatment refers to treatment interventions aimed at the individual's psychosocial life situation, and is primarily aimed at influencing motivation, behavior, attitudes, feelings and thoughts, with a pronounced focus on the individual's addiction (SOU 2011:35). The interventions can be directed both to the individual or the family who has the problem and address environmental factors that are considered to have an impact on it.

Treatment in social work is defined from a relatively broad perspective, which corresponds well with the fact that addiction is a problem with many different underlying factors. Although the concept of treatment is deeply rooted within the social work profession, research shows that the meaning of the concept of treatment is still unclear (Sallnäs, 2012). The term is used in several different meanings, everything from describing specific methods in the direct treatment interventions to designating institutional care in a more general sense (Hämberg, 2017).

## **The organisation of Swedish addiction care**

In Sweden, the main responsibility for treatment regarding substance use disorder mainly rests on the municipalities, however there are other organisations who also are responsible for providing care and treatment. Other important providers are the regional healthcare system and the Swedish state. Below is a brief overview of the three main actors and their responsibility in the Swedish substance use disorder treatment system.

### ***Municipal social services***

The social services in the municipalities have the main responsibility for care and treatment regarding substance use problems. Based on the regulations contained in the Social Services Act (SFS 2001:453), the social services have the main responsibility to provide support, care and treatment for individuals who need support to solve their substance use problems. The specific support provided is commonly determined by an investigation in which the social worker assess the individual's need for interventions and rights to treatment. The investigation by the social worker should be conducted in consultation with the client. The assistance through support and intervention provided is aimed to change or maintaining a person's life situation by means of housing support, social training, financial assistance, as well as psychosocial treatment interventions (SOU 2011:35). In the municipalities, there are different activities for individuals with substance use disorder. There may be different forms of outpatient or institutional care, housing support and job projects. The municipalities can offer care through their own organisation or through another care provider e.g. institutional care or a private outpatient reception. Social services may also offer interventions for children and other relatives of individuals with substance use problems.

### ***Regional healthcare***

The regional healthcare system has the responsibility of medical care. The various kind of interventions are regulated by the Health and Medical Services Act (SFS 1982:763). Most of the care is provided on a voluntary basis, since the Health and Medical Services Act is based on consent from the client. However, there are possibilities for coercive care if an individual is mentally ill and is considered to endanger themselves or others in their environment. Further, individuals who commit crimes and who are deemed to have a mental illness can also be sentenced to care through the psychiatric care system.

The regional healthcare system offers detoxification, but can also provide different forms of support and treatment efforts such as a range from therapeutic interventions to pharmacological treatment. Further, many clients with substance use disorder also have mental disorders, i.e. double diagnoses which means that psychiatric care is an important part of the Swedish substance use disorder treatment system.

### ***State provided addiction treatment***

The Swedish state also plays an important role in the organisation of care for substance use disorder in Sweden. Substance use problems are common among clients within the prison and probation services. It is estimated that 60-70% (SOU 2011:35) of these populations are involved in some form of substance use. The Swedish Prison and Probation Services has responsibility for providing treatment to prevent relapse in criminality at the national level. Probation services handles the supervisions of clients on probation, including those subject to electronic monitoring or those with sentences involving contract care or community service orders. Since individuals with criminal justice involvement are often also those with substance use disorders, resources have been increased over recent years to improve treatment of substance use disorder both in prison and the probation services.

The Swedish state is also responsible for compulsory care for individuals with a substance use disorder. For a more detailed description regarding compulsory care for a substance use disorder, see the following section below.

### **The Swedish compulsory care system for substance use disorder**

This dissertation responds to questions regarding both repeated voluntary treatment and repeated compulsory care for substance use disorder. Even though article one (Repeated addiction treatment use in Sweden: A national register database study) is focused on repeated voluntary treatment, most of this work has focused on treatment repeaters in compulsory care. Also, there is not a consistent voluntary treatment system in Sweden. In summary, voluntary treatment for substance use disorder is provided through the municipalities and the regional health care system. Even though compulsory care for substance use disorder in Sweden is not unique (Israelsson and Gerdner, 2010), I will provide the background on the compulsory care system.

The laws on compulsory care for a substance use disorder have existed for more than hundred years in Sweden. The law "Care of Abusers (Special

Provisions) Act (1988:870)” was founded on the framework of civil (non-criminal justice) rehabilitating compulsory care (Israelsson & Gerdner, 2010). In Sweden, there is a unique government authority for compulsory care due to substance use disorder for adults called the national board of institutional care (SiS).

It is the municipal Social Services board in a person’s home municipality that applies for care through LVM (Care of Abusers (Special Provisions) Act (1988:870)) to the administrative court. The legislation is mandatory for the municipality in the sense that if it is likely that a person needs to be given care by LVM, the social welfare board is obliged to apply the law to provide the necessary care<sup>1</sup>. In general, the application must include an assessment by a physician and information from others (such as family) can be included. On the basis of the investigation and anything that emerges in the oral proceedings with the client, the court makes a sentencing versus non-sentencing decision. It should be noted that all government authorities who in their regular activities come into contact with individuals with a substance use disorder, are required to immediately notify the social service board if they become aware of someone who is likely to be in need of care through LVM. In Sweden, compulsory care due to substance use disorder can be as long as six months.

The Social Services board is obliged to initiate a compulsory care investigation when, through notification or otherwise, they have become aware that there may be grounds for compulsory care. If, after the investigation is completed, the social services board finds that there is reason to use compulsory care, the board has an obligation to apply for such care at the administrative court. The trial of the administrative court shall, according to the motive, be a legality test to determine whether the conditions for compulsory care for substance use disorder are in accordance with the law and if such care should be prepared for the individual.

The compulsory care system for substance use disorder provides both incarceration and treatment interventions. Although compulsory care is an established part of the addiction treatment system in Sweden (Gerdner & Berglund, 2011; Rundquist, 2012) it has been a subject to recurrent political and professional debate. Central issues in the discussion include security of the person in compulsory care, ethical aspects of providing care for a substance use disorder in a closed institution without the person’s consent, content and quality of the provided care, and the social responsibility to protect individuals who are belonging to one of the most vulnerable and marginalized group in society (Storbjörk, 2010).

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<sup>1</sup> Care through LVM is regulated in 4 §, under this paragraph is a general indication requiring ongoing substance abuse and a demand for care that cannot be met other than by mandated force. Also contains 4 § rules for three special indications of which one of these must be met for a decision on compulsory care.

Individuals, who suffer from severe substance use disorder to such extent that they constitute a danger to themselves or others, can thus be mandated to compulsory care for substance use disorder by the Swedish court system. The municipal Social Services board has a responsibility and an obligation to actively ensure that an individual with substance use disorder issues receives the care and treatment they need regarding their substance use problems (Alm, 2015). This means that the Social Services board must reach out and help those individuals who have issues with substance abuse, even if they have not requested help.

A substance use disorder treatment based exclusively on volunteering or restricting compulsive interventions to short-term life-saving actions often leave vulnerable individuals without the necessary resources to manage their situation, thereby compulsory care can be seen as expressing a solidarity with those (SOU 2004:3). The compulsive component of this treatment model is considered necessary during the initial stages of the treatment process to maintain the individual in a secure system when their motivation may not be enough to engage with treatment.

The function of the law is to regulate the ability of society to reprimand the individual with a substance use disorder into care against their own will. And the purpose of compulsory care is primarily that the individuals actual need for care is fundamental for application of the law. Compulsory care should aim to motivate individuals so that they can proceed in to voluntary continued support and treatment to abstain from substance use problems. This means that a short-term goal regarding compulsory care is the individual's motivation for voluntary treatment. The basic idea is that compulsory care should be seen as an introduction to a treatment that, in most cases, has to last for a longer period of time than the compulsory requirements. The compulsory care period in LVM will ensure that the client can be retained for the duration of the motivational work, and the goal of LVM is that the client should be motivated for a treatment aimed at permanent changes in their life situation (SOU 1987:22).

It is important to know the purpose of compulsory care when analyzing possible effects of the treatment. The idea is not that the client should be free from the substance use disorder when they are ending their episode at the compulsory care institution. The purpose of compulsive care has been achieved when the clients are motivated for the substance use disorder treatment to continue without any compelling elements (SOU 1987:22). The purpose of LVM care must always be to make positive changes for the client, in addition to the temporary improvement that the LVM home-care period itself may imply.

After completion of the compulsory care episode, the Social Services board should actively work for the clients to get housing and other forms of intervention. They should also ensure that the individual receives personal

support or treatment in order to achieve a lasting improvement in his or her situation. The efforts of aftercare are necessary and crucial for rehabilitation, since care consisting solely of staying at a compulsory care institution has a little chance to succeed.

### **Summary of the context**

In summary, treatment for substance use disorder can be conducted by different organisations, although the three main actors are the lokal municipalities, the regional health care system as well as the Swedish state. Since the Swedish state has the responsibility regarding compulsory care due to substance use disorder, it is resonable to count them as a third main actor i.e. municipalities, the regional health care and the Swedish state. The three authorities have different assignments that govern their respective missons regarding the care they offer. The differences between them include the concept that individuals with a substance use disorder are a specialty target group for the local social servicves, while the regional health care should offer care to everyone, where individuals with a substance use disorder aren't a separately-identified category. Other differences are that the municipalities are not doing compulsory care for substance use disorder, this reonsibility has instead shifted to the Swedish state through SiS. The regional health care system may also take the use of compulsory care for individuals with a substance use disorder through psychiatric coersive care, which means that there is a diagnosed psychiatric disorder and substance use disorder is an complementary diagnosis (Israelsson, 2012).

## **Theoretical framework**

This chapter provides an introduction to the theoretical framework used as a background theory to aid in the conceptualization of service use by treatment repeaters in the Swedish addiction treatment system proposed for this dissertation. The theoretical frameworks that have been used as a foundation for this study are Andersen's Behavioral Model of Health Services Use and the Behavioral Model for Vulnerable Populations.

### **Andersen's Behavioral Model of Health Services Use**

The original behaviour model of health services use was developed in the late 1960s to assist in exploration and increased understanding of how families use health services (Andersen, 1968, 1995). The model suggested that use is a function of a predisposition by families to use health services, including factors that enable or impede such use, and people's need for care (Andersen, 1968, 1995). This model of health services use was originally created to explore how families as a unit use health services, and has subsequently evolved from focus on families to focus on individuals' use of health services.

The original behaviour model, developed to study determinants of health care use, suggested that health services use is determined by three factors: societal factors, factors of the health services system, and individual factors. Individual factors, which have been focus of several studies, include three components that relate to the access and use of health care and the frequency and number of episodes of health care: predisposing, enabling, and need factors (Andersen, 1968). Regarding individual factors, Andersen theorized that a person's predisposition to seek health care is a function of sociodemographic factors. He assumed that both individual and community enabling resources must be present for an individual to take advantage of medical resources. Further, Andersen noted that any use of health care is influenced by how individuals view their own health status, i.e. the need for care. It is the perceived need for health care that one assumes will better explain individuals use of care.

Andersen's Behavioural Model is widely used as a theoretical framework for research regarding the use of health services and other kinds of services (Gillström, 2001; Babitsch, Gohl & von Lengerke, 2012; Fleury, Grenier, Bamvita, Perreault, Kestens & Caron, 2012; Laban, Gernaat, Komproe, De Jong, 2007; Coughlin, Long, and Kendall, 2002). As mentioned above, the basic premise of the model is founded on three core components – predisposing, enabling, and need factors – that precipitate the use of health services. The predisposing factors of the model include individual characteristics such as age, gender, and marital status. Social

structure characteristics such as education, ethnicity and social class were also noted. In addition, the framework addressed health beliefs, such as the value of health services and knowledge of the health care system. All of these variables are important to consider when examining individual health care use. The older an individual is, the more likely he or she is to need some kind of health care. Education, ethnicity and social class may also influence an individual's ability to access health care. For example, those with higher levels of education may be more likely to seek health services and are also better able to communicate with health care providers than those who are less educated. Social structure, particularly social class, influences the value individuals place on health and their reactions to seeking care. Health beliefs are important in understanding the knowledge people have about the health care system and may also provide some understanding of why a person uses health services.

Even if a person has the desire to use health care, enabling resources must be present. The enabling component of the behavioral model includes the means a person has available to use specific services. Financial means, such as family resources such as income and savings, health insurance, a regular source of care, place of residence, and geographic region, are important enabling factors. Not only is it important to have the financial means to be able to use health care, but medical facilities and health care providers must be present in the community or nearby vicinity as well.

Need characteristics are also important to consider in examining a population or subgroups use of health care. Without a perceived need for health care, it is unlikely that a person will use health care services. The more widely used measures of need included by those using this model to study service utilization are health and functional status. Because both of these measures are difficult to obtain for studies of service utilization, researchers typically use self-reported health and functional status instead of an evaluated measure of need in studies of health service utilization.

On this basis, The Behavioral Model constitutes an opportunity for individual as well as contextual factors to be explored when determining influence on an individual's service use.

### **The Behavioral Model for Vulnerable Populations**

The Behavioral Model for Vulnerable Populations is an expansion of the original Behavioral Model of Health Services Utilization. It represents an adaptation of the behavioral model that includes factors to consider when studying the use of health services among vulnerable populations. Some of the categories may need to be adapted or tailored to specific vulnerable groups when the model is applied to them. For example, childhood

characteristics, substance abuse, mental illness and competing priorities may assist in understanding health behaviors in vulnerable populations.

Based on Andersen's Behavioral Model (Andersen, 1968, 1995), the Behavioral Model for Vulnerable Populations (Gelberg, Andersen & Leake, 2000) explores predisposing, enabling, and need factors that may predict health behavior and subsequent outcomes among vulnerable populations. It expands the original model with the addition of vulnerable domains within each of these headings to account for specific areas that may impact health outcomes and service utilization. For example, while the traditional predisposing domain consists of demographic, health beliefs, and social structure factors such as age, ethnicity, and gender, the vulnerable predisposing domain includes additional social structure factors and childhood characteristics such as mental health, substance abuse, and psychological resources. Family and community resources are encompassed within enabling factors. The traditional enabling domain includes factors such as insurance and regular sources of care and social support, while the vulnerable need domain accounts for factors including competing needs, self-help skills, and social service resources. Both the traditional and vulnerable need domains consist of perceived and evaluated health, but the vulnerable need domain highlights health condition specific to vulnerable populations such as those experiencing homelessness, mental health illness, and substance use disorder (Bernard, 2011).

### ***Use of theory for present study***

The theoretical use in this dissertation study is the first to incorporate components of the Behavioral Model for Vulnerable Populations to examine addiction treatment use in Sweden. Due to its ability to identify particular challenges faced by vulnerable populations in obtaining necessary services, the Behavioral Model for Vulnerable Populations is a functional framework for examining different factors that may be associated with service use. This framework is applicable to this study due to its comprehensive use of predictor variables and, in particular, its adaptability to the specific needs of the vulnerable population being studied.

As mentioned above, the Behavioral Model of Vulnerable Populations includes several factors associated with addiction treatment utilization among individuals with an addiction at both the traditional and vulnerable domain levels. Based on different variables included in the Behavioral Model of Vulnerable Population, this research will maintain focus on examining the relationship and association of predisposing, enabling, and need factors on repeated use of addiction treatment.

### ***Theoretical limitations***

Even though the theory used in this study is based on research that has been tested with other vulnerable populations, this theory has not been used to examine repeated addiction treatment use specifically among adults within Sweden. Further, the different variables selected for the research in this dissertation have not been examined in conjunction with each other, and definitely not within this population. Another aspect to consider using this theory is that three of the studies in this dissertation focus on individuals who are mandated to treatment and this theory is usually used to carry out research on how people choose to seek care on their own will. If this is a problem, I can not judge, but there is something to be aware of and to taken into account when analyzing the results in the different studies.

Considering the dearth of research examining addiction treatment use among this understudied group, the use of this theory is a first step in addressing existing gaps in literature, empirical research, and theory building regarding repeated treatment for addiction.

### ***Summary***

The Behavioral Model for Vulnerable Populations, an adaptation of Andersen's Behavioral Model of Health Services Use, serves as the theoretical framework used in this dissertation study. This study is the first to use components of the Behavioral Model for Vulnerable Populations to examine addiction treatment utilization among treatment repeaters within Sweden. This study's theory draws specific variables from the Behavioral Model for Vulnerable Populations, including predisposing, enabling, and need factors, to examine their association and impact on addiction treatment utilization by Swedish adults in several nationally-representative samples. While previous research has investigated the impact of these factors among other vulnerable populations there remains a scarcity of literature exploring their impact on adults with an addiction.

## Method

This thesis is based on three national-level databases. Study I is based on the ASI database and studies II-IV are based on DOK and KIA databases originated from The National Board of Institutional Care (Statens institutionsstyrelse, or SiS) and Death Registry from The National Board of Health and Welfare. The description of data sets including study population and measurement instruments as well as statistical methods are given below.

All four studies in this thesis (I – IV) are based on longitudinal data. This methodology enables the researcher to follow individuals over time, and in turn gives the opportunity to define treatment repeaters since we can count the number of times an individual is in both voluntary and compulsory care. Longitudinal study also allows the researcher to study how factors can vary over time, that is what happens to those clients, i.e. reveal patterns that may be of interest.

### Study I

#### ***Database: ASI***

The Addiction Severity Index (ASI) was constructed during the early 1970s as a means to evaluate the treatment offered to many of the addicted U.S. soldiers returning from the Vietnam War (McLellan, Cacciola, Alterman, Rikoon & Carise, 2006). The initiator of the research project was the National Institute on Drug Abuse (NIDA) and Thomas McLellan was appointed chief of the research team. The project group's mission was to evaluate a network of processing units to obtain information about veterans with an addiction and their complex problems. During the construction of the ASI, the research team concluded that substance abuse is linked to a number of different areas of life. Knowledge of veterans multifaceted problems influenced the form and content of the assessment instrument, and still today the process of completing an ASI interview is characterized by the social context the ASI originally designed to consider.

The interview is designed for individuals with substance use disorder who are older than 18 years. ASI has a variety of uses, for example the information obtained using the assessment instrument can be used for identification, assessment and monitoring of individual clients' situation and the need for help. The information is also useful for group summary at the operational level as well as for research and methodology development. The interview describes the nature, scope and duration of the problem and the need for help, and also takes into account that addiction problems cut across many different areas of life (Engström, 2005)

The ASI-interview includes questions about seven different life areas: physical health, work and livelihood, alcohol use, drug use, legal problems, family and friends, and mental health (McLellan et al., 1992). The interview form is structured primarily with fixed-answer options to reduce the interviewer effect, which implies a reduced risk that different interviewers receive different answers. In addition, the structure of the interview helps the interviewer to query all vital areas of life.

The ASI is currently used in more than half of Sweden's addiction treatment units operated by local governments.

### ***Population***

Today in Sweden, approximately 200 (69%) of the 290 municipalities use the Addiction Severity Index (ASI) (Armelius and Armelius, 2011) as the key instrument for baseline assessments with individuals presenting with addiction-related problems. The psychometric properties of the ASI have been tested extensively, with a large number of studies having demonstrated good-to-excellent reliability and validity for the instrument (Nyström, Andréén, Zingmark & Bergman, 2010). Other studies have found reliability of composite scores ranges from high to low (Samet, Waxman, Hatzenbuehler, & Hasin, 2007; Pankow, Simpson, George, Rowan-Szal, Knight, & Meason, 2012). In Sweden, the data from these assessment interviews are entered into a common database. A revised individual-level research database, established from the larger ASI database but summarized to ensure no duplication of cases, was created by Armelius, Nyström, Engström and Brännström (2009). This revised database includes data from 50 municipalities, representing close to a third of all municipalities using the ASI assessment tool in Sweden in 2005 (Armelius et al., 2009). A comparison of the results from the Armelius database with the Swedish Census data indicates that the Armelius and colleagues (2009) data is highly representative of the Swedish population data. However, there is an overrepresentation from municipalities with larger populations (Armelius and Armelius, 2011). A comprehensive analysis of both baseline and follow-up data from this database is described in Armelius and Armelius (2011). For the purpose of study I in this thesis, only baseline assessment data with 12,009 individuals from the Armelius research database were included.

### ***Variables used in the analysis***

*Substance use disorder treatment episodes* was created by adding together all of a client's treatment episodes: that is, number of outpatient and inpatient treatment episodes for drugs and number of outpatient and inpatient treatment episodes for alcohol use disorder.

*Age* was measured as a continuous-level measure.

*Gender* had two categories, male and female.

*Immigration status* is a five-category variable developed to measure first and second-generation immigrant status. Given the cultural similarities between the Nordic countries (Sweden, Norway, Finland and Denmark), immigration status was further specified by whether an individual or her/his parents were born inside or outside the Nordic countries. Specifically, the immigration status variable includes the following categories: (1) both the individual and her/his parents born in Sweden, (2) individual born outside of Sweden and inside Norway, Finland or Denmark (first-generation immigrant), (3) individual born outside of Sweden, Norway, Finland or Denmark (first-generation immigrant); (4) individual born in Sweden with parents born in Norway, Finland or Denmark (second-generation immigrant); and (5) individual born in Sweden with at least one parent born outside Nordic countries (second-generation immigrant).

*Education* was measured as number of years of education.

*ASI family and social score* were measured in terms of satisfaction with marital status and relationships with others, and how bothered the client was by his or her family and social situation and the client's report on how much help was needed for these issues.

*ASI employment score* encompasses both the ability to get to work (e.g., access to car), number of days worked in the past 30 days, and amount of money earned.

*ASI psychiatric score* combined eleven different measures including mental health symptoms (ever experienced during lifetime), importance of getting help, how bothered the client was by the symptoms, and the number of days during the past 30 days the client was bothered by the symptoms.

*Substance use severity* was measured with two ASI scores and an additional four variables. The *ASI alcohol score* and *ASI drug score* each focused on use and how bothered the client felt by the problems arising from alcohol and/or drug use and how important the client felt it was to get help to address those problems. In addition, a third variable measured client reports of the number of years they had used multiple drugs as well as alcohol to intoxication three or more days per week. A fourth variable measured the number of times the client had overdosed on drugs. A fifth variable measured the number of times the client had been in compulsory treatment for illicit drug use. Finally, a sixth variable measured number of times in compulsory treatment for alcohol.

*ASI legal score* measured the client's self-reported involvement with the criminal justice system, how bothered and how in need of help the client reported feeling about legal issues. History of involvement with the criminal justice system was measured through a composite variable that combined

answers from three variables: number of drug crimes, number of property crimes, and number of violent crimes the client has been charged with. These three variables were consolidated into one variable measuring whether the client had ever been charged with any crime.

*ASI health score* measured the number of days of health problems in the past 30 days and the client's sense of being bothered and needing to get help to address health concerns.

Treatment repeaters

*Mental health needs* were measured in several ways including history of inpatient and outpatient psychiatric treatment which were measured with two dichotomous variables measuring whether the client had ever been in inpatient treatment for psychiatric problems (yes/no) and whether the client had ever been in outpatient treatment for psychiatric problems (yes/no).

### ***Statistical analyses***

First, univariate descriptive statistics were used to describe the study population. Next, bivariate analyses were conducted using chi-square, one-way ANOVA, and Pearson correlation methods to examine the relationship between each independent variable and the number of substance abuse treatment episodes. A linear regression model was developed using variables that were significant at the bivariate level. For the linear regression model, the multi-category variable measuring immigrant status was divided into four dummy variables with no dummy variable for the largest group, individuals and their parents born in Sweden. Finally, for the linear regression model, all variables were entered as a group.

## **Study II, III and IV**

### ***Database: DOK, KIA and Death registry***

DOK-interview (documentation systems in addiction treatment) originated from Sweden and is similar to the ASI in the sense that it is based around various life areas that research has shown are important to take into consideration in care-planning for addiction treatment. It is, like the ASI, a structured interview that is built around fixed questions and defined answer responses. The purpose of the DOK was to create an interview that could help to improve the documentation in the treatment system for substance use disorder (Anderberg och Dahlberg, 2009).

The DOK can be used for treatment planning, self-evaluation, treatment follow-up, and epidemiological information at national-level. It covers six different areas of life including: childhood, social situation, family and other

relations, mental and physical health, crime, alcohol use and drug use. The interview form is structured with almost solely fixed-answer options which reduces the interviewer effect, where different interviewers receive different answers. In addition, the structure of the interview helps the interviewer to query all vital areas of life.

The National Board of Institutional Care (SiS) uses the DOK as an instrument for baseline assessments and documentation for adults mandated to compulsory care for substance use disorder. SiS has responsibility for the data from these assessments which are entered into a database (the DOK).

A client administrative database (KIA) is used by the National Board of Institutional Care as a register database of all intakes to compulsory care for a substance use disorder. It is through the KIA that we could get obtain dates for compulsory care episodes for clients in the study, i.e. number of times each client has been in compulsory care for a substance use disorder.

The Swedish National Death Registry provides the basis for official statistics on causes of death in Sweden. The data in the registry is used as a basis for research. The purpose of the register is to describe causes of death and follow the development of mortality in Sweden.

### ***Population***

The DOK data (2001-2009) have been merged with data from the Swedish National Death Registry (2001-2011) at an individual-level using a de-identified person identification number.

The population in the study includes individuals who had been mandated to enter compulsory treatment for substance abuse between 2001-2009 and who had, during their assessment interview at the intake, given their written consent to SiS to participate in research. A total number of 4515 individuals were included in the database, representing approximately 90% of the 5007 clients who received compulsory care for addiction between 2001 and 2009. To be eligible for inclusion in study III, clients had to survive the 6 months after the date of first enrollment at compulsory care. The study population consists of 4515 clients, among whom 48 died within the 6 months window. Therefore, a total number of 4467 clients were analyzed in study III. Among the 4515 individuals included in the database, 1061 died during the course of the study and an additional 735 were missing all baseline data (i.e., did not complete the baseline interview), resulting in 2719 cases and another sixty-one cases were dropped during the final analyses due to missing information on number of compulsory care entries, (less than 3% of cases), for a final n of 2658 (Study II and IV).

## ***Variables used in the analysis***

*Dependent variable: Repeated compulsory care for substance use disorder* was measured by client report of having two or more compulsory entries (yes or no); that is, if the client had been in compulsory care for substance use disorder before 2001, and had been sentenced to care at least once between 2001 to 2009, or the client was sentenced to care more than once between 2001-2009, he or she was defined as having two or more compulsory entries.

*Covariates: Age* was measured as a continuous-level measure.

*Gender* had two categories, male and female.

*Education* is a four-category variable: did not complete primary school, completed primary school, completed high school or trade school, completed post-secondary education.

*Family and social relationships* combined answers from 11 different relationships (e.g., do you get social support from parents, siblings, neighbors, friends, co-workers, etc.) into a two-category (yes/no) variable; receiving social support from any of the 11 possible relationships was considered having social support.

*Employment*, which is measured through a four-category variable, employed, retired, unemployed and other.

*Substance use severity* was measured through three variables with data about the history and type of substance misuse. The first variable was primary drug (the drug which brought the individual to compulsory care), including five categories, alcohol, amphetamines, heroin, hash and other. In the multivariable analysis, this variable was collapsed to compare alcohol-users to users of all other substances. A second variable measured if there was any addiction in their childhood home or family. The third variable measured if they had been in care through Lagen om vard av unga (LVU) “the law on compulsory care for youth” (care through LVU). Specifically, this variable measured if the individuals had been mandated to care for their substance use prior to the age of eighteen. The second and third variable were coded as dichotomous variables (yes/no).

*Mental health needs* were measured in several ways including history of outpatient and inpatient psychiatric care, history of compulsory psychiatric care, ever been severely depressed, ever tried to commit suicide, history of psychiatric problems in the childhood home or family. These were all dichotomous variables (yes/no).

*Criminality* was measured by three different variables including if the client had ever been convicted of any crime, ever been sentenced to prison and if the client had ever been mandated to locked forensic psychiatric care. These three variables were measured as dichotomous variables (yes/no).

*Having a child or children mandated to the child welfare system* is a two-category variable which measures, (1) for clients who are parents, whether

they have a child or children who has been mandated to the child welfare system, compared to (o) everyone else, including individuals who are not parents or who are parents whose children are older than 18 years of age.

*Drop-out* we used a six months window to classify clients as drop-outs or completers, given that compulsory care can last up to six months in Sweden.

*Mortality*, clients who had been enrolled to compulsory care for substance use disorder were followed until date of death, or to the latest date they were known to be alive through 31 December 2011.

*Resided in family with a substance use disorder* through self-reporting if there was anyone with substance use disorder in the childhood environment, it was measured as a dichotomous variable (yes/no).

*Resided in family with psychiatric problem* through self-reporting if there were psychiatric problems in the childhood environment, measured as a dichotomous variable (yes/no).

*Resided in foster care* controlled for if the client experienced foster care during their childhood before 18 years of age, the variable was measured as a dichotomous variable (yes/no).

*Experience of LVU* (law (1990:52) the care of young persons (special provisions) act) this variable was measured as a dichotomous variable (yes/no) if the client had been mandated to care prior to the age of eighteen.

### ***Statistical analyses***

Univariate descriptive statistics were used to describe the population. Then, bivariate analyses were conducted using chi-square tests to examine the statistical association between ordinal independent variables and repeated compulsory care episodes compared to non-repeaters. Independent samples t-tests were used to examine the statistical association between the continuous-level variable (age) and compulsory care repeaters compared to non-repeaters.

To answer research question three (are there certain sub-populations within the compulsory care system for substance use disorder that are repeated compulsory care users?) a logistic regression model was developed with variables that were significant at the bivariate level. Cox proportional hazards regression modeling was applied to respond to research question four (what is the relationship between drop-out and returning to compulsory care for a substance use disorder through a new court sentence?). To investigate whether drop-out is associated with mortality, we used Cox proportional hazards modeling to estimate hazard ratios with 95% confidence intervals. The outcome of interest is the time to death from to (date of first enrollment at compulsory care plus six months). Those who dropped out were compared to those who completed their first sentence. The same technique was used to consider the incidence of receiving a second

compulsory care sentence. In addition, to respond to research question five (is there a significant association between a risky psychosocial childhood and be repeatedly mandated to compulsory care for an substance use disorder as an adult?), a multivariable hierarchical logistic regression model was used. This model was used to assess the predictive value of socio-demographic variables and type of main drug (1st block), childhood variables (2nd block) and LVU (3rd block). In order to test for the hypothesis that the effect of gender, having resided with parents who had SUD or psychiatric problems, and having been in foster care on repeated compulsory care for SUD as an adult may be mediated by compulsory care as youth(LVU), a mediation analysis was performed. Mediation analysis was undertaken using the user written command `binary_mediation` in STATA to estimate the direct and indirect effects using the product of coefficients approach. We used the bootstrap command to obtain standard errors for the direct and indirect effects along with a 95% confidence interval.

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS), version 22.0, software package (SPSS, Inc., Chicago, IL) and STATA version 13.1 (StataCorp, College Station, TX).

## **Research on large scale data**

In this section, the value of using large-scale data in research regarding addiction, addiction treatment, and the trajectory in addiction treatment is discussed. This section highlights possibilities and limitations when using databases in research regarding substance use disorder and different pathways in treatment for clients.

### ***Methodological reflections***

There are convincing reasons to use large-scale data in research concerning addiction treatment. One of the main advantages of using registry data for research is that the register-based data provides the researcher a substantial amount of data at low cost, since the data is already collected (Wallgren & Wallgren, 2007). Another benefit is that register-based data sources usually have a large sample of data, which provides a big selection and increases the opportunity for advanced statistical analyses and also the possibility for generalizability (Creswell, 2013). Another reason to use large-scale data is that it is collected continuously and prospectively. Additionally, the data are collected independent and without connection to any research. This reduces the risk of errors such as difficulty to remember details at a later date/time, recall bias, and the impact of the study design on the results of the data

collection, also known as the Hawthorne-effect (Blom, Dukes, Lundgren & Sullivan, 2015).

A further advantage is that registers often capture data on a broad front, for example, gender, age, family and social relations, education, employment, housing, mental health issues, criminal background, main drug etc. Register databases also complete to specific target populations (Wallgren & Wallgren, 2007). Which in turn gives the opportunity to representativeness and the potential to apply real-world associations (Blom et al., 2015) regarding the research.

Regardless of all the benefits of using large-scale data for research on addiction and addiction treatment, there are also limitations. For example, the data is collected by individuals other than the researcher, which means that, as a researcher, you do not have any control over the data collection (Wallgren & Wallgren, 2007). Further, you do not know under what kind of conditions the data was collected - was it under a coercion situation, was the client affected by any kind of substance and so on (Blom et al., 2015). In this model of data collection, all the questions answered are determined in advance, so there are no opportunities to add additional questions or follow up if something in the answers is unclear.

### ***Ethical considerations***

In the beginning of the research project, an ethical application was submitted to the Regional Ethical Review Board in Umeå, Sweden. The research project was approved: SiS Dnr 41-153-2011

To protect the identity of the person who had completed the structured interview at the intake, de-identification of the material was carried out at an early stage of the research process. The results of the research were reported exclusively at a statistical group level. That is, the analysis and the results are done entirely at an aggregated level which ensures that no individuals or groups will be able to be identified. It means that in the database, there was no way to identify the client who had completed the interview and given their consent that the result from the interview could be used for research.

All the studies in this thesis are based on material which contains personal data that can be classified as sensitive. How these sensitive personal data are handled are regulated in the Personal Data Act (1998:204). The aim of the Personal Data Act is to, in the processing of personal data, protect violation of personal integrity. In general, it is forbidden to use sensitive personal data, which is stated by the principal rule of the law. But there are exceptions, for example, if it is necessary to use personal data that is considered to be sensitive in order to perform a task of general interest and normally is research considered to be included here.

Even though the respondents were adults and were informed that participation was voluntary, it is of interest to reflect upon respondent ability and understanding of the consequences of refusing the use of their interview for research. At intakes to institutions providing compulsory care for addiction, the clients are often under the influence of drugs and in general poor condition. So, you can both wonder how aware they are and how well-considered their consent is to participate in research containing sensitive personal data. Further, there is also reason to wonder how truthful they are in their answers during their interview. You can not ignore the fact that they are in a special and exposed situation (being mandated to treatment for addiction against their own will), and that this could influence their responses to questions during the intake interview.

For the clients who form the basis of the database, there are no immediate benefits for their participation in the study. But, in a longer perspective, the study's results will hopefully benefit future clients since the research results may contribute to new and important knowledge that will be used in the development of addiction treatment.

## Methodological matrix

	Aim	Population	Analysis	Database
Study I	Identify and describe specific groups who are treatment repeaters of the Swedish substance use disorder treatment system.	Baseline data for 13464 individuals interviewed and assessed for substance use disorder in the Swedish welfare system. Year?	<ul style="list-style-type: none"> <li>- Univariate descriptive statistics</li> <li>- Chi-square</li> <li>- One-way ANOVA</li> <li>- Multivariable linear regression</li> </ul>	ASI
Study II	Identify and describe specific client groups who have repeated entries to the Swedish compulsory care system for a substance use disorder.	Baseline data for 4515 individuals through the Swedish National Board of Institutional Care (SIS) data base, between 2001 and 2009.	<ul style="list-style-type: none"> <li>- Univariate descriptive statistics</li> <li>- Chi-square</li> <li>- One-way ANOVA</li> <li>- Multivariable logistic regression</li> </ul>	DOK & KIA Death registry
Study III	<ul style="list-style-type: none"> <li>1) Characteristics associated with having dropped out from a first compulsory care episode.</li> <li>2) The relationship between drop-out and later return to compulsory care through a new court sentence.</li> <li>3) The relationship between drop-out and mortality.</li> </ul>	4515 individuals through the Swedish National Board of Institutional Care (SIS) data base, between 2001 and 2009.	<ul style="list-style-type: none"> <li>- Multivariable logistic regression</li> <li>- Cox proportional hazards regression</li> </ul>	DOK & KIA Death registry
Study IV	Identify and describe specific client groups with riskier psycho-social childhood factors and the correlation with repeated entries into the Swedish system of compulsory care for substance use disorder.	Baseline data for 4515 individuals from the Swedish National Board of Institutional Care (SiS) database, between 2001 and 2009.	<ul style="list-style-type: none"> <li>- Univariate descriptive statistics</li> <li>- Chi-square</li> <li>- Independent samples t-test</li> <li>- Multivariable hierarchic logistic regression</li> <li>- Mediation analysis</li> </ul>	DOK & KIA Death registry

## Summary of studies

This chapter presents the backgrounds, aims, findings and conclusions from the four studies. Study 1: Repeated Addiction Treatment Use in Sweden: A National Register Database Study. Study 2: Repeated Entries to the Swedish Addiction Compulsory Care System: A National Register Database Study. Study 3: Drop-out from the Swedish Addiction Compulsory Care System. Study 4: The importance of risky psychosocial childhood for repeated addiction compulsory care as an adult.

### **Study 1: Repeated Addiction Treatment Use in Sweden: A National Register Database Study**

#### ***Background and aim***

This study examines alcohol and drug treatment utilization among a nationally representative sample of 13464 individuals interviewed and assessed for substance use disorder in the Swedish welfare system. The aim of this study is to identify and describe specific groups who are treatment repeaters of the Swedish substance use disorder treatment system.

#### ***Finding and conclusions***

The results from the linear Regression shows that clients who were older, men, those who reported more years of polydrug and alcohol use to intoxication, who reported more compulsory treatment episodes for narcotics and alcohol, who had ever been charged with a crime, who had ever been inpatient mental health treatment, and who had higher ASI mental health symptom composite scores were significantly more likely to report more addiction treatment episodes. Mean (SD) for number of substance abuse treatment episodes was significantly higher among men compared to women ( $4.6 \pm 10.2$  vs.  $3.6 \pm 7.7$ ,  $p < 0.001$ ), among those with inpatient treatment for psychiatric problems compared to those without ( $5.8 \pm 12.9$  vs.  $3.8 \pm 8.2$ ,  $p < 0.001$ ), among those who have been charged with a crime compared to those without history of crime ( $5.4 \pm 11.7$  vs.  $3.1 \pm 6.3$ ,  $p < 0.001$ ). Significant positive correlations were found between number of substance abuse treatment episodes and age (correlation coefficient=0.1,  $p < 0.001$ ), ASI psychiatric score (correlation coefficient=0.08,  $p < 0.01$ ), ASI alcohol score (0.04,  $p < 0.01$ ), ASI drug score (correlation coefficient=0.07,  $p < p < 0.01$ ), number of years of polydrug use and alcohol drinking to intoxication (correlation coefficient=0.19,  $p < 0.01$ ), number of times in compulsory treatment for drug and alcohol use (correlation coefficient=0.26 and 0.36

respectively,  $p < 0.001$ ). The strongest significant association with the number of treatment episodes is the number of compulsory treatment episodes for alcohol and for drugs.

Implications include the need to change the perspective in addiction treatment from an acute care perspective to a chronic care model. Furthermore, with respect to overall effectiveness, the Swedish treatment system responds to need in that individuals who need treatment for their addiction also have access to treatment.

## **Study 2: Repeated Entries to the Swedish Addiction Compulsory Care System: A National Register Database Study**

### ***Background and aim***

This study identified and described specific client groups who have repeated entries to the Swedish compulsory care system for a substance use disorder. Specifically, through the use of baseline data from the Swedish government Staten's Institutions Styrelse (SIS) database, 2658 individuals were assessed at their compulsory care interview by social workers in the national social welfare system between 2001 and 2009. This study identified the associations between specific predisposing, enabling, and need characteristics and repeated compulsory care entries for a substance use disorder.

### ***Finding and conclusions***

Mean (SD) age was 36 (14) years ranging from 18 to 76 years ( $38 \pm 14$  years in men and  $34 \pm 13$  years in women,  $p < 0.001$ ). Non-repeaters were relatively younger compared with repeaters ( $36 \pm 14$  vs.  $38 \pm 13$ , respectively,  $p < 0.001$ ). The proportion of those who had more than one compulsory care entry was 38% of all clients, with 36% among females and 39% among male. The results from Logistic Regression shows that clients who were older, were significantly more likely to have more than one compulsory addiction care entry compared to their counterparts. Employment, an enabling factor, was negatively and significantly associated with having multiple compulsory entries, with those who were unemployed less likely to have multiple compulsory care entries. Need factors associated with multiple entries to compulsory addiction care included prior experience in the LVU system, having been sentenced to prison and those who had children mandated to the child welfare system, each significantly and positively associated with multiple compulsory care entries.

The results suggest that individuals who have been mandated to compulsory care for their substance use disorder two or more times are a marginalized and vulnerable group with significant complex problems and repeated experiences of institutionalization. These individuals are a group clearly in need of integrated dual diagnosis treatment.

These results suggest further that it is important to start to develop and use methods that take gender differences into account. I.e. our study shows differences between men and women concerning their underlying social problems, including differences in the effect of getting children taken out of home by social services, primary drug and age.

### **Study 3: Drop-out from the Swedish Addiction Compulsory Care System**

#### ***Background and aim***

Drop-out from addiction treatment is common, however, little is known about drop-out from compulsory care in Sweden. The study examined the relationship between drop-out and later return to compulsory care through a new court sentence and the relationship between drop-out and mortality.

#### ***Finding and conclusions***

This study found that 59% of clients mandated to compulsory care drop-out. Clients with drop-out were relatively younger compared to those who completed their sentences (mean age  $\pm$  SD (years) were  $37.3 \pm 13$  vs.  $42.7 \pm 15$ , respectively,  $p < 0.001$ ). The proportion of women among those who dropped out was 34.2% and 37.6% among those who completed treatment ( $p < 0.05$ ). Younger clients were significantly more likely to dropout, each additional year of age was associated with a reduction in the odds of drop-out of 3% (OR=0.97, 95% CI: 0.96-0.98,  $p < 0.001$ ). Those with previous history of crime had 46% higher odds of dropout (OR=1.46, 95%CI: 1.17-1.82). Those who drop-out are significantly more likely to experience negative outcomes, i.e. additional sentence to compulsory care and higher risk of mortality. Clients who dropped out were 1.67 times more likely to return to compulsory care (HR = 1.67; 95%CI: 1.42–1.96,  $p < 0.001$ ) and the hazard of dying was 16% higher (HR = 1.16, 95%CI: 1.0–1.35) among those who dropped out compare to clients who did not drop-out. Interventions need to be implemented to increase the motivation for clients to remain in compulsory care.

## **Study 4: The Importance of Risky Psychosocial Childhood for Repeated Addiction Compulsory Care as an Adult**

### ***Background and aim***

This study identified and described specific client groups with riskier psycho-social childhood factors and the correlation with repeated entries into the Swedish system of compulsory care for substance use disorder (SUD).

### ***Finding and conclusions***

The hierarchical logistic regression model identified that individuals with riskier childhood conditions were more likely to have repeated entries to compulsory care for substance use disorder compared to their counterparts. Individuals who grew up in families with substance use disorder problems were more likely to have more than one entry to compulsory care for a substance use disorder. After controlling for a history of compulsory care as youth, all other family history variables were no longer significant.

The results from mediation analysis shows that there was a significant indirect effect of having resided in a family with SUD problems in childhood (coefficient=0,015, 95% CI: 0,007 0,024), having resided in a family with psychiatric problems in childhood (Coefficient=0,008, 95% CI: 0,001 0,017) and having been in foster care (coefficient=0,021, 95% CI: 0,011 0,032) on the likelihood of repeated compulsory care for SUD mediated through LVU. The proportion of the total effect that is mediated through LVU was 33% for SUD problems in family during childhood, 44% for psychiatric problems in family during childhood, and 38% for having been in foster care.

The indirect effects show that family history of SUD and psychiatric problems are both associated with higher probability of institutional care as a child and that in turn, childhood institutional care is related to repeated compulsory care intakes. These individuals as a group are in need of a well-coordinated and integrated system of extensive aftercare services to reduce the likelihood of re-entry into compulsory care for a SUD.

## Discussion

The purpose of this thesis was to examine and identify, i.e. increase our knowledge regarding the population groups who are repeated treatment users of the Swedish treatment system for substance use disorder by addressing several research gaps.

The first research study investigated if there are specific groups who are treatment repeaters of the Swedish voluntary addiction treatment system by examining alcohol and drug treatment utilization among a nationally representative sample of 13464 individuals interviewed and assessed for alcohol and drug use disorder in the Swedish welfare system.

The second research study focused on specific client groups who have repeated entries to the Swedish addiction compulsory care system through the use of baseline data from the Swedish government Staten's Institutions Styrelse (SIS) database. This included 4515 individuals who were assessed at their compulsory care interview by social workers in the national social welfare system between 2001 and 2009.

The third study investigated drop-out of addiction compulsory care in Sweden by addressing three different aims, (1) characteristics associated with having dropped out from a first compulsory care episode, (2) the relationship between drop-out and later return to compulsory care through a new court sentence, and (3) the relationship between drop-out and mortality. Using baseline data from Staten's Institutions Styrelse (SIS) database, 4515 individuals who were assessed at their compulsory care interview by social workers between 2001 and 2009 were included in this study.

The fourth research study identified and described specific client groups with riskier psycho-social childhood factors and the correlation with repeated entries into the Swedish system of compulsory care for substance use disorder. Through the use of baseline data from the Swedish National Board of Institutional Care (SiS) database, this study identified the association between riskier psycho-social conditions in childhood and repeated addiction compulsory care entries for 4515 individuals who were assessed at their compulsory care intake interview by social workers in the national social welfare system between 2001 and 2009.

The research that I have conducted shows that there are groups of treatment repeaters within the Swedish addiction treatment system and that these groups have a high degree of problems, i.e. an exposed and problematic group of individuals who are characterized by problems in several different areas of life. For example, the first study (Grahn, Chassler & Lundgren, 2014) in this thesis showed that those who are treatment repeaters in the

Swedish addiction treatment system had high levels of substance use problems, both alcohol and narcotic. The problems were actually so severe that the strongest significant factor for treatment repeaters within the addiction voluntary system was those who reported that they had experienced compulsory care for substance use disorder. But the clients who had experienced multiple episodes of voluntary treatment also had other problems beyond their substance use. For example, they had more extensive histories of criminality (they had been charged with crime), they also reported more mental health symptoms, and they had received more inpatient mental health treatment, compared to their counterparts. Clients with repeated needs for treatment within the Swedish voluntary treatment system for substance use disorder showed a high level of multifactorial problems.

The next step in the research was to examine factors associated with being repeaters in the compulsory care system for substance use disorder (Grahn, Lundgren, Chassler & Padyab, 2015). The results from this research, study 2, confirmed previous research findings that treatment repeaters within the compulsory care system are a group with problems within different areas of life. Yet, this study showed that the problems were even greater than previously reported. For example, the clients had experienced a number of mandated actions from different authorities, such as being sentenced to prison or their children placed in out-of-home care. The strongest significant factor for treatment repeaters within the addiction compulsory care system was to have experienced mandated care through LVU during their youth.

These studies lead us to the study focusing on the client's psycho-social childhood conditions and its relation to repeated use of compulsory care due to substance use disorder (Grahn, Padyab & Lundgren, forthcoming). This study showed no direct relation between being raised in a home by parents with a substance use disorder or psychiatric problems. However, when mediating these two childhood conditions with the factor "being mandated to care through LVU as a youth", both family factors showed a strong relationship with future likelihood of being in compulsory care for a substance use disorder repeatedly as an adult.

Finally, the third study included in this thesis handled the question regarding the correlation between drop-out during a compulsory care episode and the likelihood of a future compulsory care sentence (Padyab, Grahn & Lundgren, 2015). This study showed a strong relationship between a drop-out during the first compulsory care episode and the likelihood of having a second compulsory care sentence. This means that drop-out from compulsory care can predict another compulsory care sentence. Furthermore, the study showed that it was younger clients and clients with a history of a criminal behavior that also more extensively drop-out from

compulsory care. This can be interpreted in different ways. First, it could be summarized that this group of clients is difficult to motivate and does not want to participate in treatment. Secondly, the content and/or the design of the treatment is not perceived as appropriate or attractive enough for the clients.

In Sweden, there is a need for change in the design and delivery of treatment for treatment repeaters with substance use disorders. This conclusion is based on these research results as evidence of the need to view substance use disorder from a bio-psycho-social perspective with longer-term needs similar to other chronic conditions. Below I will discuss and put the findings of my research in relation to what it could mean for the practice if we assume substance use disorder is a chronic bio-psycho-social condition, at least for individuals who are repeated treatment users of the Swedish addiction treatment system.

### **Substance use disorder as a chronic bio-psycho-social condition**

There is no uniform pattern regarding substance use and substance use disorder problems. For some individuals, their problem may be of more transient character while others have long-term patterns. While the former is more about self-recovery or shorter treatment interventions, the other i.e. those with greater needs are using more extensive efforts and professional addiction treatment providers (Dennis & Scott, 2007; Hser, Longshore & Anglin, 2007). Clients with repeated use of treatment are distinguished from individuals who self-recover or use occasional treatment by their greater personal vulnerability, greater problem severity and complexity, and by lower levels of recovery capital as social support (Grahn et al., 2014; Grahn et al., 2015; Grahn et al., forthcoming).

Research regarding substance use disorder and treatment shows that use of treatment over multiple episodes may precede the achievement of reduced substance use and an improved social situation. Individuals who once met the criteria for substance use disorder and then recovered vary between 50-60% but the path through which recovery has taken place is of a more complex nature and during a longer time than many have believed and maybe wanted to admit (Scott, Foss & Dennis, 2005; Godley, Godley, Dennis, Funk & Passetti, 2007).

McLellan and colleagues (2000) have shown that substance use disorder shows similar features as chronic diseases, such as type 2 diabetes, hypertension and asthma. These similarities have shown that the risk of substance use, as well as other chronic diseases, is affected by genetic heredity, and also other personal, family, and environmental factors. Being able to see substance use disorder as a chronic condition in the same way as

other chronic diseases would imply that both can be identified and diagnosed using screening instruments as well as diagnostic checklists. Other similarities are that the different states usually start as a voluntary choice and then develop into a more severe problem that becomes difficult for the individual to handle. Of course, having a long-term substance use disorder varies from individual to individual in intensity and patterns, but is accompanied by increased risks of psychosocial vulnerability and, in the worst cases, premature death.

Indeed, a number of current studies suggest that multiple drug treatment use should be understood within the context of the chronic nature of drug addiction (World Health Organization, 2010; McLellan, 2002; McLellan, McKay, Forman, Cacciola & Kemp, 2005; O'Brien & McLellan, 1996). Weisner and Matzger (2002), in a discussion of factors that influence entry into treatment for substance use disorder, point to “the prominence of prior treatment predicting treatment” as evidence of the need for a chronic disease model of care for substance use disorder. Using this approach as the basis for further discussion regarding the results of all studies included in this dissertation is close at hand, as all of these studies have shown the need for repeated treatment interventions, voluntary treatment interventions (Grahn et al., 2014) as well as compulsory care efforts (Grahn et al., 2015; Padyab et al., 2015; Grahn et al., forthcoming).

If we assume substance use disorder is a chronic condition, it means that much knowledge can be obtained by studying and observing how individuals, families and healthcare workers work with other chronic health conditions that show similar patterns (Kelly & White, 2011). This means that clients with substance use disorder should be provided with basic interventions used when handling other chronic diseases such as screening tools, use of diagnosis and early intervention. Furthermore, contact over a prolonged period of time with a social worker or healthcare staff should be offered. The client should also be prepared to establish contact with support groups such as Alcoholics Anonymous or Narcotics Anonymous (White, 2009). Therefore, the client should receive continuous follow-up, relapse prevention, and when necessary, early re-intervention.

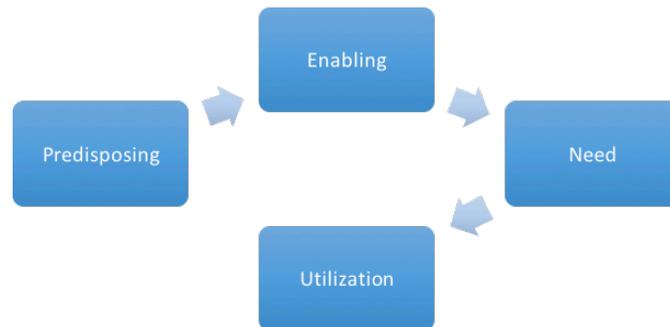
The use of a chronic care perspective of substance use disorder and the recovery process provides an opportunity to change the perspective of the treatment process. Perhaps the most important knowledge to admit and make use of during such change is that the effect of a single treatment episode without posttreatment monitoring and support is rarely enough to generate recovery that will sustain over time. This applies directly to the clients who are the focus of this dissertation, those who demonstrated a need for more than one treatment episode, i.e. treatment repeaters (Grahn et al., 2014; Grahn et al., 2015; Padyab et al., 2015; Grahn et al., forthcoming). Further advantages could be that multiple episodes of treatment, when used

together in a long-term perspective and with a long-term recovery plan, may give client's a positive perspective which can build motivation toward recovery as a more cumulative effect. In this regard, I have no proof of my studies available, but will bring further reasoning about this in the discussion later on.

## **Theoretical implications of the research**

### ***Original theory***

The starting point of Andersen's original Behavioral Model of Health Services Use (Andersen, 1968) is that there is a linear relationship between the different components, i.e. predisposing, enabling, and need, which must be met for the use of health services to take place. Depending on the degree of need for the need variable, the function for enabling factors as a regulator varies. If the individual, or the family has a non-urgent need or the nature of the individual/family to choose whether to seek care, Andersen claims that there is a linear relationship between predisposing factors through enabling factors to need which ultimately leads to the use of care to take place in different forms, see figure 1 below (Andersen, 1968, p. 109-110).



*Figure 1.* Andersen's original theory.

However, if the need factor is of a more acute character, Andersen (1968, pg. 110) derives the enabling regulator is to be bypassed, i.e. predisposing leads through need directly to healthcare utilization, that is the enabling factor as a regulator is bypassed. The impact of the individual or family to choose health care use is subject to the need factor into a greater extent (figure 2).

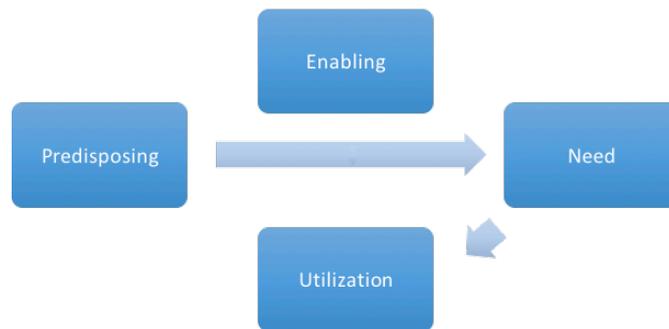


Figure 2. Andersen's original theory on hospitalizations.

### **Revised theory**

When applying Andersens Behaviour Model of Health Services Use to treatment for substance use disorder in the Swedish welfare system, the relation between the different factors, i.e. predisposing, enabling, and need, can be described as follows. All individuals have predisposing factors which affect their view, knowledge, and background conditions for care or treatment in different ways. Instead of the linear connection between predisposing, enabling, and need factors, this will change to predisposing, need, and institutional enabling factors which enables utilization of the treatment system. This is important since the Swedish treatment system for substance use disorder is based on social services assessment of the individual's need for treatment regarding substance use disorder and what kind of treatment or care the individual is entitled to. An individual has limited opportunities to seek care on his/her own, i.e. directly with the treatment provider for a substance use disorder. Most of time, the process goes from need through the authority i.e. institutional enabling factor to utilization of substance use disorder treatment.

This means that the greater the substance use disorder severity and the greater the individual's need for treatment for substance use disorder, the less influence individuals have to choose to participate in treatment, while institutional influences of providing care is increasing (figure 3).

In the first study (Grahn et al., 2014) the health care utilization model was a helpful theory to analyze and illustrate that in Sweden, it seems like the need and the severity of the substance use disorder defined which clients had more treatment episodes. For example, clients who reported higher levels of substance use and had used alcohol and drugs to such level of severity that they had been in compulsory care for substance use disorder, also used more voluntary treatment episodes. In this study, the strongest significant factor identified was between prior history of compulsory care for

substance use disorder and repeated use of voluntary treatment. In the second paper (Grahm et al., 2015), research showed that individuals who had a prior history of LVU, also defined as a high degree of vulnerable situations as a youth, also had high needs of treatment and support as an adult.

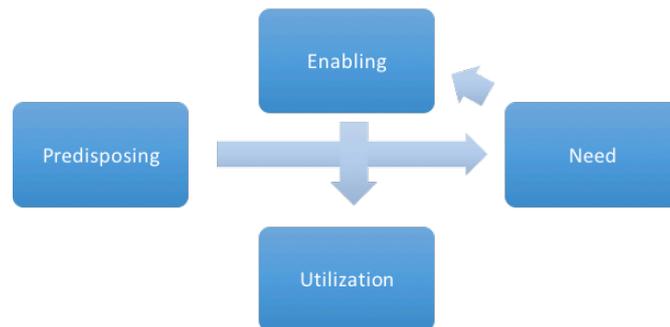


Figure 3. Evaluation of need as enabling factor.

### ***Theoretical implications***

Based on the studies provided in this thesis, the theoretical implications concerning Andersen's Behaviour Model of Health Services Use, are that different kinds of institutional factors, such as foster care, LVU, correctional treatment, and that one's children was taken into care outside the home, played a significant role in understanding individuals with an SUD who were in need of addiction care repeatedly. I.e. prior institutionalization predicts future institutionalization. Hence mandatory utilization predicts future mandatory utilization.

Indeed, there are underlying predisposing factors which increase the risk of and the need for multiple addiction treatment, but these are minor compared to the institutional history factors. Andersen's Behaviour Model of Health Services Use theory suggests that societal and institutional factors are of greater importance regarding individuals being treatment repeaters in the Swedish substance use disorder treatment system compared to individual predisposing, need, and enabling factors (figure 4). See for example study one, two and four where there are a lot of different components that we can call institutional factors that affect the client's likelihood of having repeated episodes of treatment for substance use disorder. For example, in study one (Grahm et al., 2014), individuals who have experienced compulsory care was the strongest significant factor due to repeated voluntary treatment. Study two showed that having been in prison for crime, having children in foster care, and having experienced mandated care as a youth were the primary factors associated with repeated compulsory care (Grahm et al., 2015). Regarding the relationship between mandated care as a youth through

LVU, and repeated need of compulsory care for substance use disorder as an adult, this was confirmed in the fourth study (Grahn et al., forthcoming). Growing up in a risky psychosocial childhood was not a factor significantly associated with having more than one compulsory care episode. Growing up in a family with parents with a substance use disorder, psychiatric problems or having experience in foster care all showed significant relationships to having been mandated to LVU. In addition, there was a relationship between reporting a risky childhood psychosocial environment and an history of being mandated to care through LVU that, in turn, led to repeated compulsory care for substance use disorder as an adult.

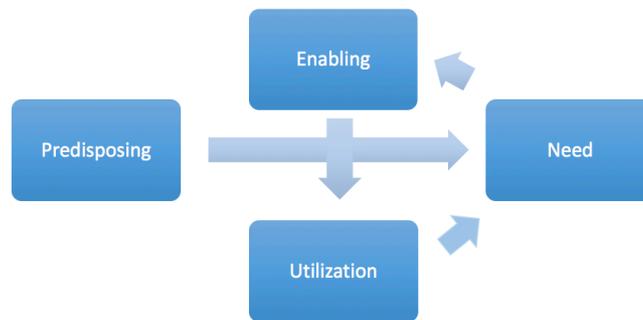


Figure 4. Institutional care predicts further institutional care.

### Practical implications of the research

Whether substance use disorder is considered a chronic condition that can be considered as a disease or not, it is concerning that there are many clients, about 20 to 25 percent, who are in need of repeated treatment for substance use disorder. In study 1, repeated addiction treatment use in Sweden: a national register database study (Grahn et al. 2014), on average, the clients reported 4.3 prior treatments episodes. Regarding compulsory care due to substance use disorder, 38% of the clients had more than one compulsory care episode (Grahn et al. 2015). Regarding the issue that compulsory care for substance use disorder is primarily intended to interrupt a negative and vulnerable life situation for the client and to motivate further treatment on voluntary basis, a return to compulsory care could be interpreted as being LVM-care or that the subsequent voluntary treatments efforts failed to fulfill their mission.

Clients returning repeatedly to compulsory care and voluntary treatment can be problematic in several ways. First, it can be perceived as a personal failure for the individual who remains in need or is forced to substance use treatment several times. Further, an institutional treatment effort of both

voluntary and mandated treatment means a socio-economic burden for the municipality. In addition, it is conceivable that staff at institutions may be adversely affected by meeting clients returning to treatment repeatedly due to their substance use disorder. A general point of view in social work is that therapists should support and work with clients in the capacity of supportive resources (Bogarve, Ershammar & Rosenberg, 2012; Topor & Borg, 2008). If then the same client returns in treatment repeatedly, it can be perceived by the social worker or therapist as their own professional failure. This can lead to difficulties for the therapist to find their own motivation to be supportive in a way that motivates and supports their clients. Additionally, returning to treatment repeatedly may have a negative moral effect on fellow clients, since these clients may perceive that the treatment effort has not worked for the person returning, thereby raising mistrust of the treatment offered to them.

### ***Continuing care***

One approach to substance use disorder regarding clients who return to treatment repeatedly is to indicate a need for a treatment which is based on the concept of continuous care. For example, the result from our first study (Grahn et al., 2014) confirms a potential need for this where the clients had 4.1 treatments episode on average, and in the second study for this thesis, 38% of the clients had more than one compulsory care episode (Grahn et al., 2015).

Continuing care research indicates that interventions that feature longer planned durations and active efforts to deliver treatment are more likely to show positive effects over other interventions (McKay, 2009). The term continuing care has, in the substance use disorder treatment field, been used to indicate the stage of treatment that follows an initial episode of more intensive care. Continuing care conveys the idea that treatment continues in a phase that follows a treatment initiative that has begun at an earlier stage (McKay, 2005). Actually, in the substance use disorder treatment field, continuous care is a relatively unclear concept of different actions of varied content. In general, it is about treatment that comes after the first/initiative treatment episode is completed. The type of intervention that follows an initial treatment episode can be defined as continuous care and is often defined as self-help groups, 12-step-oriented group counseling and individual therapy (McKay & Hiller-Sturmhöfel, 2011). Where self-help groups like Alcoholics Anonymous or Narcotics Anonymous are the most commonly available type of continuing care for a substance use disorder, they are not formal treatment interventions. The most common type of formal continuing care is group counseling based on 12-step principles. The vast majority of clients receiving continuing care for substance use disorder

participate in group sessions, and some clients also receive individual therapy.

The research on continuing care has shown convincing evidence that continuing care can be effective in sustaining the positive effect of the initial phase of treatment. Studies on continuous care have shown that treatment with a longer planned duration of therapeutic contact appears to hold an advantage over shorter interventions (Godley et al., 2007). Further, interventions in which greater efforts were made to reach and engage the client through home visits or telephone calls or by involving family members appeared to be more effective.

The issue with the concept of continuous care is that it many times in the literature is just another term for aftercare. The clients who are in need of treatment for substance use disorder repeatedly are in need of treatment during a long time and through repeated episodes. This probably means that continuous care is not an entirely correct and adequate response from the authorities in Sweden who are responsible for treatment regarding substance use disorder.

### ***Monitoring***

Regular monitoring of symptom severity levels and status over time by patients or their health care providers is considered a standard component of care for a number of chronic disorders, including hypertension, diabetes, and asthma. In the field of treatment for a substance use disorder, the potential effect of this therapeutic monitoring approach has been studied. For example, Dennis and Scott (2002) developed a protocol which they have called recovery management checkups (RMC).

The recovery management checkups protocol is designed to manage clients with substance use disorders more effectively over time. To use some form of monitoring would help the clients, when they, in our studies, demonstrated the need for repeated treatment efforts (Grahn et al., 2014; Grahn et al., 2015). Hypothetically, one can imagine that these clients nevertheless would return to addiction treatment, but perhaps during a more thoughtful planned and controlled form and that they did not have to be subject to compulsory care for substance use disorder repeatedly (Grahn et al., 2015). Results of studies regarding recovery management checkups shows that RMC intervention led to better management of clients over time. First, clients using recovery management checkups, were more likely to be readmitted to treatment, they were readmitted sooner, and they received more treatment during the study follow up for two years than those clients who not been using RMC. Secondly, patients using recovery management checkups had better substance use outcomes, compared to clients not using RMC (Scott & Dennis, 2009).

This may be of interest, but further studies may be needed regarding this group of clients returning to treatment for substance use disorder repeatedly.

### ***Adaptive intervention***

Another step to create better conditions for clients in need of repeated treatment for substance use disorder lies in the ability to modify treatment over time, which most likely would be beneficial to these clients. This is called adaptive treatment and includes interventions that are modified over time in response to changes in symptoms, functioning, and needs (Collins, Murphy & Bierman, 2004). There is a possibility that adaptive treatment is an important approach that may improve the result of treatment for substance use disorders over time. After completion of a treatment episode, individuals with substance use disorder tend to go through periods of abstinence or non-problematic use (Hser, Longshore & Anglin, 2007). During such periods, they are not in need or probably not motivated to continue to meet a therapist for treatment or support. However, many of these individuals will eventually engage in problematic drinking or drug use again, and then need a new treatment episode. But at that point, these individuals with substance use disorder can be difficult to reach. Getting in touch with these clients and motivating them for a new treatment episode can be challenging. The idea of adaptive treatment is that when the clients are doing well, the level or intensity of the treatment is reduced in order to relieve the burden on the patient. This then increases the ability to get greater compliance with treatment (McKay, 2005). There will be a need for some degree of contact during periods when the client don't are in need for intervention, so when the symptoms are worsening the client can be reached more quickly, and the intensity of interventions could be increase when necessary.

Continuing care combined with monitoring efforts and intervention of adaptive character could end up in a treatment designed as adaptive continuing care.

### ***Adaptive continuing care***

As research has shown, many individuals with a substance use disorder end up in treatment that consists of a number of treatment episodes over time, which may be similar to a treatment career, but these episodes are typically not integrated in any way. To avoid this kind of phenomenon, there is a possibility to coordinate the treatment efforts in the form continuing care with intensity of treatment and adaptive interventions. This may be a more correct intervention perspective for clients who cycle in and out of treatment.

Continuing care for individuals with a substance use disorder should be flexible if it is to be efficacious for the clients. Some clients will need long-term and more highly-structured continuing care, and others will need treatment with significantly lower intensity. Many of the clients that are in need of treatment, and probably a majority of the clients with a pattern of repeated use of treatment, will need and benefit from an adaptive continuing care model that can be adjusted up and down in intensity and frequency over time as they go through alternating periods of abstinence and use (McKay, 2009). When clients are in periods of abstinence, where low intensity of treatment is needed, low-level monitoring may be optimal as it places a minimal burden on the client (Scott, Dennis & Foss, 2005). However, when clients start a new episode of substance use and the risk level rises, monitoring needs to be able to catch the clients and guide them to suitable level of treatment to interrupt and address whatever processes are leading to further deterioration (Dennis & Scott, 2007).

This version of continuing care varies in intensity depending on how the client feels and where he/she is in their substance use disorder, i.e. how active the period of abuse the client is in. Interventions that fluctuate in intensity may vary from institutionalization to outpatient contacts to telephone support and self-help groups. The important thing is that availability and duration of treatment and support is accessible over time. This means that during the periods when the client is doing well and is not using drugs, the client has access to support, in low-intensity forms i.e. monitoring. When the needs increase and the craving for the drug becomes difficult to manage (and if the client has started to do drugs again), treatment interventions are inserted under custom and more intensive forms.

The clients in our research would probably be helped by such an approach, both the clients that repeatedly use voluntary treatment for substance use disorder (Grahn et al., 2014) and those mandated to compulsory care more than once (Grahn et al., 2015). This could also benefit those clients that experience mandated care during their childhood and youth through LVU (Grahn et al., forthcoming), then as adults end up in compulsory care for substance use disorder repeatedly. The result in this study can be interpreted in different ways. First, the Swedish social welfare system targets a population with a high need for services, i.e. the right population is given access to care. Secondly, the result could be interpreted as the care given these individuals when they were youths was insufficient to improve their situation over time.

In summary, continuing care for clients with substance use as a more chronic condition needs to be flexible regarding frequency, intensity, and treatment focus. Further, it needs to be able to provide a functional linkage to other authorities and professional providers.

### ***Change of concepts***

The reasoning above informs the dialogue about continuing care, further enforcing that there is also a need to change or not use the concept of 'after care'. Instead, in a continuity of care model, we may combine adaptive interventions in the form of adjustable levels of intensity of care. This is still treatment, but in different forms with different levels of intensity. In this model, all interventions are available to help the individual change their life situation or maintain positive effects from their treatment episode. When there is a need, the client can access more intensive treatment to address their drug use problem.

Regarding the group of clients who are the focus of this dissertation, those who cycle in and out of care, the treatment field should not talk in terms of after care when these clients are clearly in need of treatment and care over a sustained time period. The use of a term like 'after care' indicates that something is provided after the treatment is completed. For these clients, it is not a correct approach because they are in need of continued care which is adapted based on their individual needs.

### ***Change in the treatment process***

We are assuming that substance use disorder is a bio-psycho-social problem, and for some individuals it is of a chronic nature. It is important when organizing interventions and direct client contact, social workers utilize a non-judgmental and moralizing perspective and response. For example, our study regarding drop-out from the Swedish addiction compulsory care system (Padyab et al., 2015) none of the demographic and psychiatric variables proved to be of importance, except young age and history of crime, suggesting the importance factors beyond the individual to keep clients engaged to complete their treatment episode. According to Craig (1985), the match of intervention to client needs and the interaction with the treatment staff seems more important than client factors. Furthermore, it is of utmost importance to adapt the interventions according to the client needs (see the reasoning above).

Findings from the first, second and forth study (Grahn et al., 2014; Grahn et al., 2015; Grahn et al., forthcoming) confirms this and it shows that clients with multiple needs use voluntary treatment repeatedly and also experience of more than one compulsory care episode. This indicates the importance of using an adaptive continuing care model, where client's complex needs are met. This continuing care should be provided by an integrated constellation of treatment institutions, municipal social services, and health care organizations.

In comparison to other chronic disorders, no one expects an individual with a condition like diabetes or a psychotic or bipolar disorder to achieve the equivalent of abstinence from serious and significant medications or treatment of the disorder. For many individuals with a substance use disorder, long-term abstinence is probably a preferred outcome of the treatment. However, a greater emphasis during adaptive continuing care on improving personal and social functioning that can help the clients to draw benefits from substance use treatment and to be less concerned about whether the individual has remained totally abstinent would be more consistent with a recovery focus. With a system using this model of adaptive continuing care, if and when the client is in need of treatment, they have all the possibilities and opportunities to access the level of treatment they are in need of at the specific period of relapse.

In summary, if we consider addiction as a bio-psycho-social condition, then the findings from my three different studies show that social factors play a great role with respect repeated use of treatment. Institutional factors such as in-patient psychiatric care, having been in compulsory care as a youth, imprisonment, having children under the care of the welfare system are all associated with repeated use of treatment for substance use disorder. These social institutional factors also had stronger associated with repeated treatment use compared to individual level factors.

In the Anderson models accessing care is considered to be an enabling factor. However, for the clients in our studies it seems like that institutional care leads to further institutionalization and greater needs. Hence, a conclusion from my studies is that socially institutional factors are of proportionally greater importance for understanding treatment repeaters of the Swedish addiction treatment system compared to factors such as age, gender and education.

Finally, with respect to theory, the Andersen Behavioral Model of Health Services Use has been a useful model and guidance for the research carried out. My research has expanded on this model since it has illuminated something new, that is, traditionally an enabling factor use of care, this particularly institutional care, may not have an enabling effect since it seems to predict further and repeated institutional care for clients with a substance use disorder.

# Sammanfattning på svenska

## Bakgrund

Enligt den svenska socialtjänstlagen (SFS 2001: 453) har socialtjänsten huvudansvaret att tillhandahålla stöd, vård och behandling för personer som behöver hjälp för att lösa sina problem med alkohol och narkotika. Vidare i socialtjänstlagen, kap 5 § 9, står det att socialtjänsten i berörd kommun ska aktivt se till att individen får den hjälp de bedöms behöva för att bli av med sitt missbruk. Detta kan tolkas som att ett beroende är ett problem som kan lösas en gång för alla. Vidare är den svenska lagen gällande behandling för alkohol och narkotika formulerat så att de som är ansvariga och tillhandahåller behandlingsinsatserna också ska arbeta aktivt för att individen ska motiveras till behandling och förändring utifrån frivilliga insatser, men även lösa deras beroende och sociala situation i stort. Studier har dock visat att även om behandlingssystemet i stor utsträckning har fokus på att lösa beroendet, återfaller ungefär två tredjedelar av klienter till alkohol och narkotikaanvändning igen, inom ett år efter avslutad behandling. Detta kan riskera att skapa besvikelse och misstro hos klienterna gentemot den behandling de erbjuds men även leda till ökade sociala och hälsomässiga risker. Den här avhandling fokuserar på de klienter som är i behov av behandling vid upprepade tillfällen genom dem svenska missbruksvården. Kortfattat kan detta formuleras som att det grundläggande problem som behandlas är att många individer som är beroende av alkohol eller narkotika använder behandling för detta vid ett flertal tillfällen.

## Syfte

Syftet med avhandlingen var att identifiera och undersöka den grupp av klienter som var i behov av upprepade insatser för beroende för alkohol eller narkotika via det svenska missbruksvårds systemet, vilket inkluderar både frivilliga insatser så som tvingande via tvångsvården.

## Metod

Avhandlingen bygger på tre olika databaser. Den första studien baserades på en ASI-databas och till studierna två, tre och fyra användes dels DOK- och KIA data från Statens institutionsstyrelse (SiS) och dels från dödsorsaksregistret från Hälso- och sjukvårdsverket (Socialstyrelsen). Analysmetoden som användes för att genomföra den första studien var en linjär regressionsmodell. För att besvara undersökningsfrågan för delstudie II användes en logistisk regressionsmodell, och för att genomföra delstudie

III användes en cox regressionsmodell. Och de analysmetoderna som användes för att besvara delstudie IV, var både en multivariabel hierarkisk logistisk regressionsmodell och en mediationsanalys.

## **Resultat**

Resultaten från studierna visar att klienter med en högre grad av problem och svårigheter inom ett flertal livsområden också hade ökade behov av behandling för missbruk vid upprepade tillfällen. Exempelvis var de klienter som var äldre och som rapporterade fler år substans användning, som blivit dömd för brott, som någonsin varit aktuell inom den psykiatriska institutionsvården, rapportera i större omfattning fler tillfällen av frivillig missbruksbehandling. Vidare visade resultaten att klienter som tidigare upplevt tvingande insatser från samhället, så som tvångsvård som ung genom LVU, psykiatrisk tvångsvård, de som varit dömd till fängelse och de vars barn blivit placerad via socialtjänsten, hade också i större utsträckning blivit dömd till tvångsvård för missbruk upprepade gånger. När det gäller avvikningar från tvångsvården visade det sig att 59% av klienterna som var dömd till tvångsvård avvek under deras vårdtillfälle, och att yngre klienter var mer benägna att avvika. De klienter som avvek uppleva negativa resultat av detta, i den meningen att de i ökad grad blev dömd till en ytterligare tvångsvårds behandling och dessutom visade på en högre risk för förtidig död. Angående relationen mellan uppväxtmiljö och behovet av upprepad tvångsvård som vuxen, visade resultatet att individer med en riskfylld uppväxtmiljö hade en ökad risk av tvångsvård för missbruk. De indirekta effekterna av en uppväxtmiljö där det funnits missbruk eller psykiska problem var förknippade med ökad sannolikhet för vård på institution som barn, dvs LVU, vilket i sin tur visade på ett signifikant samband till upprepade tillfällen av tvångsvård för missbruk som vuxen.

## **Slutsats**

Individer som använder behandling för missbruk upprepade gånger har generellt en högre grad av problem inom olika livsområden jämfört med klienter som använder sig av behandling vid enstaka tillfällen. Att ha vuxit upp under ogynnsamma hemförhållanden, tvångsvård före 18 års ålder (LVU), tvångsvård för missbruk som vuxen, barn som omhändertagits av samhället och kriminalitet är de faktorer som framförallt är associerade med upprepade missbruksbehandling och tvångsvård för missbruk. Tillgång till samordnade eftervårdsinsatser förefaller avgörande för att motverka risken för återfall i ett allvarligt drogmissbruk efter avslutad behandling vilket även inkluderar tvångsvårdsinsatser.

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