A 24-Year Follow-up Study on Recidivism in Male Mentally Disordered Sexual Offenders With and Without Psychotic Disorders*

ABSTRACT: There is a lack of knowledge on mentally disordered sex offenders (MDSOs) targeting adult victims, especially regarding recidivism patterns and the specific subgroup with psychiatric disorders. This paper presents index offense data, clinical data, and recidivism patterns over up to 24 years in a cohort of 146 MDSOs, with and without psychotic disorders, sentenced in Sweden between 1993 and 1997. At the time of the offense, all offenders were affected by clinical, developmental, and criminal history factors. MDSOs with psychotic disorders only marginally differed from those without, the former being less likely to have been institutionalized during childhood, intoxicated during the index offense, or diagnosed with a personality disorder, substance use disorder, or paraphilic disorder. In the cohort, 3.4% of the MDSOs were reconvicted for a new sex offense over 2 years, 9.6% over 5 years, 13.0% over 10 years, and 17.1% over the entire follow-up period of 24 years. In MDSOs with psychotic disorders, no subjects were reconvicted during the first 2 years, while 2.6% were reconvicted over 5 years, 5.3% over 10 years, and 7.9% over 24 years. Recidivism rates for violent and general reoffenses were 39.0% and 37.7%, respectively, for the cohort of MDSOs, and subjects with psychotic disorders reoffended significantly later in general offenses. In conclusion, MDSOs with psychotic disorders showed the same recidivism pattern as MDSOs without psychotic disorders. Furthermore, recidivism research may preferably focus on follow-up periods of 5–10 years since most offenders appear to recidivate within this timeframe.

KEYWORDS: sex offenses, mentally disordered sex offenders, rape, psychotic disorder, follow-up, recidivism

Sexual violence involves different criminal acts and is widely considered a global problem affecting the mental health and physical well-being of victimized men and women (1). In a yearly national survey on how criminal offenses affect people residing in Sweden, one-fifth of women age 16–24 state they often are concerned about being a victim of rape or other types of sexual offenses, and for those in the age group with most victims of sexual violence, more specifically age 20–24, as many as 35.8% report that they have been the victim of a sex offense (2).

There is no sex offender archetype, yet various subgroups of sex offenders have been described in the literature (3,4). Based on U.S. data from the National Violence Against Women (NVAW) Survey, half of all female sex offense victims are adults (5), and the offenders specifically targeting these women comprise such a subgroup. In sex offender research, offenders with adult victims and offenders with underage victims are usually studied as one offender group (6-8), even though the adult victim subgroup is clinically different (9), and recidivate at a significantly different rate (10). Additionally, sex offenders with underage victims may have different motives, as described in the diagnosis of pedophilia. For this reason, it is important to specify the characteristics of the specific subgroups in sex offender studies.

While most sex offenses are perpetrated by individuals (commonly males) motivated by either the pursuit of sexual gratification or power and dominance (1), some sex offenders suffer from the clinical implications of mental disorders, complicating interpretations of their motives. Mentally disordered sex offenders (MDSOs)—a clinical category rather than a legal designation—comprise offenders demonstrating substantial psychiatric comorbidity, most commonly mood disorders, personality disorders, substance use disorders, and paraphilic disorders (7,11,12). Additionally, MDSOs who present symptoms from the psychotic disorder spectrum represent a subgroup of sex offenders that offers unique challenges with regard to motivations, risks, and interpretations of their motives. Mentally disordered sex offenders (MDSOs)—a clinical category rather than a legal designation—comprise offenders demonstrating substantial psychiatric comorbidity, most commonly mood disorders, personality disorders, substance use disorders, and paraphilic disorders (7,11,12). Additionally, MDSOs who present symptoms from the psychotic disorder spectrum represent a subgroup of sex offenders that offers unique challenges with regard to motivations, risks, and interpretations of their motives. Mentally disordered sex offenders (MDSOs)—a clinical category rather than a legal designation—comprise offenders demonstrating substantial psychiatric comorbidity, most commonly mood disorders, personality disorders, substance use disorders, and paraphilic disorders (7,11,12). Additionally, MDSOs who present symptoms from the psychotic disorder spectrum represent a subgroup of sex offenders that offers unique challenges with regard to motivations, risks, and
treatment needs. In a 2018 review on sex offenders with psychotic disorders, Lewis & Dwyer addressed several areas requiring more research (13). This included further studies on female offenders, offenders found not guilty by reason of insanity, and possible effects of comorbidity. Research on recidivism was also found lacking, primarily due to conflicting results. Understanding recidivism is of particular importance for the treatment process, risk assessment, and management of sex offenders. Furthermore, sex offense recidivism studies with long follow-up periods—a decade or more—are scarce, and those focusing on sex offenders with psychotic disorders even more so. More knowledge on the characteristics of sex offender subgroups, including their particular recidivism patterns, is needed. Speculatively, through such an increased characterization, recidivism rates as well as the number of victims may be minimized by the use of preventive measures and risk assessments. In response, this paper presents data on an MDSO cohort consisting of almost every single sex offender with a psychotic disorder, and approximately 17% of the total number of all sex offenders in Sweden during the period of inclusion. Additionally, this study comprises detailed clinical data, gathered from forensic psychiatric reports.

The aims of the study are threefold: Firstly, to describe a male cohort of Swedish MDSOs concerning common index offense factors, criminal history factors, developmental factors, and clinical factors; secondly, to compare the sex offenders suffering from psychotic disorders to those that do not on the above described factors; and thirdly, to establish the relapse pattern for sexual, violent, and general recidivism for up to 24 years for sex offenders with and without psychotic disorders, respectively.

Methods

Legal Background

Sweden lacks a legal concept of unaccountability, such as not guilty by reason of insanity. Instead, the medicolegal term “severe mental disorder” is used, which mainly includes offenders diagnosed with a psychotic disorder (14). The presence of a severe mental disorder does not preclude the court from determining criminal responsibility. It does, however, impose some restrictions on the type of sanctions available for adjudication. Offenders with a severe mental disorder are commonly sentenced to compulsory forensic psychiatric care instead of imprisonment. To determine the presence of a severe mental disorder, the offenders are examined in a court-ordered pretrial forensic psychiatric investigation (FPI). These 4-week investigations are conducted by the National Board of Forensic Medicine, using a team consisting of a forensic psychiatrist, a forensic clinical psychologist, a forensic social worker, and ward staff, resulting in a written report. The sanction is then decided by the court, considering this report (14).

Study Population

All Swedish males who, between January 1, 1993, and December 31, 1997, underwent an FPI as part of the legal trial of an index sex offense were included in this study (N = 146) (Fig. 1). Sex offenses were defined as all acts, both violent and nonviolent, listed under chapter six of the Swedish Penal Code. This included, but was not limited to, rape, statutory rape, sexual molestation, sexual coercion, and sexual exploitation. Attempted sex offenses were also included when it resulted in a conviction. All subjects and index offense victims were at least 15 years old, which is both the age of criminal responsibility and sexual consent. The offenders were aged between 17 and 71 years (Mdn = 34.0, M = 35.3, SD = 8.42) at the time of the index offense, and almost all their victims were female (97.3%).

Demographically, a majority of the offenders (62.3%, n = 91) were born in Sweden whereas 8.2% (n = 12) hailed from other parts of the Nordic countries, and 8.9% (n = 13) from other parts of Europe. The rest of the subjects (20.5%, n = 30) originated from other parts of the world.

Variable Definitions

Two versions of the Diagnostic and Statistical Manual of Mental Disorders (DSM) were used during the period of index offense data collection: DSM-III-R and DSM-IV (15,16). A Swedish short version of the DSM-IV was published in 1995 but not immediately implemented in clinical practice by the National Board of Forensic Medicine. Therefore, in this study the DSM-III-R was used in 82.2% of the FPI cases (n = 120) whereas the DSM-IV was only used in 17.8% of cases (n = 26). Diagnostic categories used in the study were based on applicable chapters in DSM-III-R and DSM-IV, respectively. More specifically, the following inclusions were made: psychotic disorders were defined as any diagnosis listed in the sections “schizophrenia,” “delusional disorder,” and “psychotic disorders not elsewhere classified” in the DSM-III-R, and the section “schizophrenia and other psychotic disorders” in DSM-IV; mood disorders were defined as any diagnosis listed in the section “mood disorders” in both DSM-III-R and DSM-IV; paraphilic disorders were defined as any diagnosis listed in the sub-section “paraphilias” under the sections “sexual disorders” and “sexual and gender identity disorders” in DSM-III-R and DSM-IV, respectively, as well as any other disorder where the psychiatrist specifically noted issues with sexual compulsiveness; substance

FIG. 1—A schematic flow chart of adult sex offenders with adult victims through the Swedish legal system between January 1, 1993, and December 31, 1997. Female sex offenders are included in the group consisting of 857 offenders, but are assumed a small minority deemed too few to have a meaningful effect. Note that offenders are not formally sentenced until after the FPI.
use disorders were defined as any diagnosis listed in the section “psychostimulant use disorders” (nicotine excluded) in DSM-III-R, and any diagnosis of non-nicotine, noncaffeine substance dependence or substance abuse listed in the section “substance-related disorders” (intoxication and withdrawal excluded) in DSM-IV; and personality disorders were defined as any axis-II diagnosis of a personality disorder regardless of DSM version. Furthermore, “childhood conduct disorder traits” was defined as the occurrence of at least one of criterion A for conduct disorder according to the latest version of the DSM (17) during childhood. Correspondingly for “childhood hyperactive traits,” at least one of criterion A.2 for attention-deficit/hyperactivity disorder was required.

Subjects were considered intoxicated during the index offense if there was any mention of substance use during the time of the offense, either in the legal proceedings report or in the FPI report. “Hands-on modus” refers to any physical, exclusively sexual, acts involving the victim whereas “use of physical violence” refers to strictly nonsexual physically violent acts during the offense. Lastly, “childhood institutionalization” was defined as any amount of time spent in foster care, a family home, or the Swedish equivalent of a juvenile detention center.

Index Offense Data

Index offense data were collected from the FPI reports as well as from the written court verdicts. All subjects were sentenced to either forensic psychiatric care (43.2%, n = 63), prison (44.5%, n = 65), or probation (12.3%, n = 18). Specifically, 92.1% (n = 35) of those diagnosed with a psychotic disorder and 25.9% (n = 28) of those without were sentenced to forensic psychiatric care. The index offense data variables were divided into four separate categories: index offense factors (age at index offense, index offense hands-on modus, index offense use of physical violence, substance intoxication during index offense), criminal history factors (age at first conviction, previously convicted, previous sex offenses), developmental factors (childhood hyperactive traits, childhood conduct disorder traits, childhood institutionalization), and clinical factors (any diagnosis of paraphilic disorder, mood disorder, substance use disorder, personality disorder, and antisocial personality disorder). Roughly one-fourth of the subjects (26.7%, n = 39) had immigrated to Sweden as adults, resulting in a reduced access to more exact forms of childhood-related data.

Follow-up Data

The follow-up started at the conviction date of the index offense, and data concerning all new sentences for recidivistic offenses up until December 31, 2016, was collected from the National Council for Crime Prevention’s register of persons found guilty of offenses. In addition to the register data, all written revocations (about 1000) were collected from the district courts and the courts of appeal and used as a basis for deciding type of recidivistic offense. All the appeals to the Supreme Court were denied hearing and were therefore not included. Dates regarding emigration or death were collected from the Swedish Tax Agency’s population registry.

Similar to the index sex offenses, follow-up sex offenses were defined as all acts, both violent and nonviolent, listed under chapter six in the Swedish Penal Code. For violent offenses, all strictly violent, nonsexual, offenses were counted—both physical and nonphysical acts, including coercion and arson. All other offenses were categorized as general offenses, which mainly included traffic and drug offenses, as well as theft. Reconvi-
cations, measured as sentence documents consisting of one or more charges, were divided into new sex offenses, violent offenses, or general offenses. No offense type took priority over any other, meaning a subject could be reconvicted for all three offense types simultaneously given that charges for all three offense types were present in the sentence document. This can be exemplified by a subject committing rape, assault, and driving while intoxicated—all within the framework of one single sentence.

Ethics

The study was approved by the Regional Ethical Review Board at the University of Gothenburg (377-17, T1056-17). Both index offense and follow-up data were collected from either the FPI or from the National Council for Crime Prevention’s register and sentence documents. Data collection without contacting or informing individual subjects was approved by the Regional Ethical Review Board.

Statistical Analyses

Statistical analyses were conducted using the IBM SPSS Statistics 25 software. Two-tailed p-values of p < 0.05 were considered significant. No Bonferroni adjustments were used since the general null hypothesis (i.e., all null hypotheses are true simultaneously) was not considered clinically relevant. This is a position that has been argued as preferable in clinical research (18,19). Nonparametric statistical methods were consistently used since data were non-normally distributed. Between-group differences were measured using Pearson’s chi-squared test (or, where applicable, Fischer’s exact test) for dichotomous variables and Mann–Whitney U-test for continuous variables. In order to aid laymen in interpreting the results in the present study, “jargon-free” (20) measurements of effect sizes were consistently used. Not only has this been found to be preferred by readers, but it also increases the perceived effectiveness of the interventions reported (21). Therefore, effect sizes were measured as odds ratios (OR) with 95% confidence intervals for dichotomous variables, and the measure of Stochastic Superiority (A) for continuous variables (22), which is a nonparametric alternative to the measure of Probability of Superiority (PS) also known as the Common Language Effect Size (CL) (20,23). Described succinctly by Ellis (20), OR “compares the odds of an event or outcome occurring in one group with the odds of it occurring in another” (p. 13), whereas A, PS, and CL all are “the probability that a random value from one group will be greater than a random value drawn from another” (p. 13). Lastly, Kaplan–Meier survival analyses with log-rank tests were used to compare time until first reconviction in a new sexual, violent, or general offense.

Results

Index Offense Data

A majority of the subjects had been previously convicted (68.5%, n = 100), and one-third (33.6%, n = 49) for sex offenses specifically. The mean age at first conviction was 27.8 years. While all subjects were convicted of an index sex offense in order to be included in the study, 86.3% (n = 126)
committed a single sex offense whereas the rest committed two (12.3%, \( n = 18 \)) or three (1.4%, \( n = 2 \)) sex offenses. Furthermore, 53.4% (\( n = 78 \)) of the subjects were simultaneously convicted for some type of violent offense, and 28.0% (\( n = 41 \)) for both a violent and a general offense.

Rape was the most common type of index sex offense (62.3%, \( n = 91 \)), followed by sexual molestation (28.8%, \( n = 42 \)), sexual coercion (13.0%, \( n = 19 \)), and sexual exploitation (4.8%, \( n = 7 \)), where two subjects convicted victims between 15 and 18 years of age. One offender (0.7%) was convicted of sexual intercourse with a child, in addition to a sex offense against an adult.

One-third (35.6%, \( n = 52 \)) of the subjects presented significant psychological and/or behavioral issues during childhood such as conduct disorder traits, hyperactive traits, and/or having been institutionalized; two-thirds of those in this group (63.4%, \( n = 33/52 \)) had been sent to a family home, foster care, or the Swedish equivalent of a juvenile detention center. At the time of the FPI, 141 of the 146 subjects (96.6%) received an axis-I and/or axis-II diagnosis according to the DSM-III-R or DSM-IV. On average, any one subject was ascribed two diagnoses. Thirty-eight (26.0%) subjects were diagnosed with some type of axis-I psychotic disorder, among which around half had schizophrenia (47.4%, \( n = 18/38 \)), followed by nonspecified psychotic disorder (31.6%, \( n = 12/38 \)), delusional disorder (13.2%, \( n = 5/38 \)), and one each of schizoaffective disorder, substance-related psychotic disorder, and brief psychotic disorder (2.6%, \( n = 1/38 \), respectively). Of the 17 subjects diagnosed with a mood disorder, only two subjects presented with bipolar-like symptoms, only one of which specifically mentioned mania (organically induced mania). Instead, the remaining subjects with mood disorders were diagnosed with dysthymia and other depressive disorders. Twelve subjects had an intellectual disability, although just one subject presented moderate symptoms whereas the others presented mild and marginal symptoms. Twenty-four subjects (23.2%) had no axis-I diagnosis, but were instead diagnosed primarily with one or more personality disorders, intellectual disability, or both. Out of the five undiagnosed subjects, four were still described as suffering from various types of family or partner psychosocial problems.

**Follow-up Data**

The follow-up period ranged from 6 months up to 24 years (\( Mdn = 20.2 \) years, \( M = 17.1 \) years) and depended heavily on the date of the index offense and whether or not the subject in question was expelled from Sweden as part of the verdict. A majority of the subjects were still confirmed alive by December 2016 (59.6%, \( n = 87 \)), whereas 28.1% (\( n = 41 \)) had died, and 12.3% (\( n = 18 \)) had emigrated from Sweden. Looking at the individual follow-up period of each subject, 89.7% (\( n = 131 \)) were still alive and residing in Sweden after 5 years, 79.4% (\( n = 116 \)) after 10 years, 72.6% (\( n = 106 \)) after 15 years, and 50.6% (\( n = 74 \)) after 20 years. Seventeen subjects (11.6%) were included during the first year of inclusion (1993) and were followed for the entire 24-year period until the end of 2016.

In Fig. 2, specific recidivism frequencies are demonstrated for the cohort, visualized as number of convictions after the index offense over a period of, at most, 24 years. Half of the subjects were never reconvicted of either a sexual (82.9%, \( n = 121 \)), violent (61.0%, \( n = 89 \)), or general offense (62.3%, \( n = 91 \)). Of those reconvicted, most subjects tended to be sentenced for one or two new offenses of any type. Eleven (7.5%), 32 (21.9%), and 31 subjects (21.2%) were reconvicted for two or more sex, violent, and general offenses, respectively. Reconvictions for a sex offense was the least common recidivistic crime (\( Mdn = 1.0 \), \( M = 2.0 \), range 1–13), followed by violent offenses (\( Mdn = 2.0 \), \( M = 1.9 \), range 1–5), and general offenses (\( Mdn = 2.0 \), \( M = 3.0 \), range 1–14). One subject, however, continued to commit hands-off sex offenses roughly once a year throughout the entire follow-up period. Subjects with a psychotic disorder were reconvicted for an average of 0.11 sex offenses (\( Mdn = 0.0 \), range 0–2) as compared to 0.42 (\( Mdn = 0.0 \), range 0–13) for subjects without a psychotic disorder.

**Offender Subgroup Comparisons**

Subjects without psychotic disorders were three and a half times as likely to be diagnosed with any type of personality disorder, two and a half times as likely to be intoxicated during the index offense, more than three times as likely to have been institutionalized during childhood, and more than twice as likely to be diagnosed with a substance use disorder compared to subjects with psychotic disorders (Table 1). Additionally, no subjects were ascribed both a psychotic disorder and a paraphilic disorder (Table 1).

As seen in Table 2, about one in five subjects were reconvicted for a new sex offense with an apparent, but statistically nonsignificant, difference between offenders with and without psychotic disorders. Reconvictions for violent and general offenses were roughly twice as common as convictions for sex offenses. Subjects with psychotic disorders reoffended significantly later in a general offense—roughly twice as late as compared to subjects without a psychotic disorder. More specifically, there was a 76% chance that a subject with psychotic disorder would reoffend later than a subject without a psychotic disorder.

![FIG. 2—Distribution of total number of reconvictions measured as separate verdicts among reoffending subjects (52.7%, \( n = 77 \)) for the whole follow-up period. Index offense not included. [Color figure can be viewed at wileyonlinelibrary.com](Image 118x63 to 486x187)
TABLE 1—Subject and index offense data including incidence of offense characteristics, childhood conditions, and DSM diagnoses. Results are presented as n (%) or Mdn (range). Instances of missing data for developmental variables are caused by inconclusive background information on migrant subjects. Tests of significance were performed using the two mentally disordered sex offender (MDSO) subgroups.

| Variable Type                      | Total Sample (N = 146) | With Psychotic Disorder (n1 = 38) | Without Psychotic Disorder (n2 = 108) | χ² | U  | p    | OR (CI 95%) | A  |
|------------------------------------|------------------------|-----------------------------------|--------------------------------------|----|----|------|-------------|----|
| Index offense factors              |                        |                                   |                                      |    |    |      |             |    |
| Age at index offense               | 34.0 (17–71)           | 35.6 (17–51)                      | 34.0 (19–71)                         | –  |    |      |             |    |
| Index offense hands-on modus       | 123 (84.2%)            | 29 (76.3%)                        | 94 (87.0%)                           | 2.44 |    | 0.119 | 2.05 (0.89–5.03) |    |
| Index offense use of physical violence | 120 (82.2%)       | 28 (73.7%)                        | 92 (85.2%)                           | 2.54 |    | 0.111 | 2.05 (0.89–5.03) |    |
| Index offense substance intoxication | 74 (50.7%)            | 13 (34.2%)                        | 61 (56.5%)                           | 5.58 |    | 0.018 | 2.49 (1.15–5.41) |    |
| Criminal history factors           |                        |                                   |                                      |    |    |      |             |    |
| Age at first conviction            | 25.0 (15–71)           | 24.0 (15–51)                      | 25.0 (15–71)                         | –  |    |      |             |    |
| Previously convicted               | 100 (68.5%)            | 23 (60.5%)                        | 77 (71.3%)                           | 1.51 |    | 0.219 | 1.62 (0.75–3.51) |    |
| Any previous sex offense           | 49 (33.6%)             | 11 (28.9%)                        | 38 (35.2%)                           | 0.49 |    | 0.484 | 1.33 (0.60–2.98) |    |
| Developmental factors              |                        |                                   |                                      |    |    |      |             |    |
| Childhood hyperactive traits       | 25/132 (18.9%)         | 4/31 (12.9%)                      | 21/101 (20.8%)                       | 0.96 |    | 0.327 | 1.77 (0.56–5.62) |    |
| Childhood conduct disorder traits  | 35/133 (26.3%)         | 6/31 (19.4%)                      | 29/102 (28.4%)                      | 1.01 |    | 0.315 | 1.66 (0.62–4.44) |    |
| Childhood institutionalization      | 33 (22.6%)             | 4 (10.5%)                         | 29 (26.9%)                           | 4.28 |    | 0.039 | 3.12 (1.02–9.52) |    |
| Clinical factors                   |                        |                                   |                                      |    |    |      |             |    |
| Any paraphilic disorder diagnosis  | 15 (10.3%)             | 0 (0.0%)                          | 15 (13.9%)                           | 5.88 |    | 0.012 | Not applicable* |    |
| Any mood disorder diagnosis        | 17 (11.6%)             | 2 (5.3%)                          | 15 (13.9%)                           | 2.03 |    | 0.239 | 2.91 (0.63–13.33) |    |
| Any substance use disorder diagnosis | 55 (37.7%)          | 9 (23.7%)                         | 46 (42.6%)                           | 4.28 |    | 0.039 | 2.39 (1.03–5.52) |    |
| Any personality disorder diagnosis | 90 (61.6%)            | 15 (39.5%)                        | 75 (69.4%)                           | 16.68 |    | 0.001 | 3.48 (1.62–7.52) |    |
| Antisocial personality disorder diagnosis | 21 (14.4%)      | 4 (10.5%)                         | 17 (15.7%)                           | 0.62 |    | 0.431 | 1.59 (0.50–5.05) |    |

*Divided by zero subjects.

The median follow-up time until first reconviction after the index offense was roughly four and a half years for new sex offenses as well as new general offenses, and over 5 years for violent offenses. No significant differences in recidivistic patterns were found between subjects with and without psychotic disorders for neither violent nor sex offenses.

Figure 3 demonstrates survival functions for sex, violent, and general recidivism, comparing subjects with or without psychotic disorders. The Kaplan–Meier survival analyses resulted in no statistically significant differences for any of the recidivism types. For the cohort, 3.4% (n = 5) were reconvicted for a new sex offense over 2 years, 9.6% (n = 14) over 5 years, 13.0% (n = 19) over 10 years, and 17.1% (n = 25) over 20 years. No subjects with a psychotic disorder were reconvicted during the first 2 years of the follow-up, while 2.6% were reconvicted over 5 years, 5.3% over 10 years, and 7.9% over 20 years.

**Discussion**

We have presented a study on MDSOs, comparing male offenders with and without psychotic disorders. All subjects underwent an FPI and were convicted for adult victim sex offenses between the years of 1993 and 1997 in Sweden. To our knowledge, the data on criminal recidivism represents one of the longest follow-up periods for MDSOs in the literature. The principal findings of the study were that MDSOs with or without psychotic disorders were severely burdened by clinical, developmental, and criminal history factors, and that the recidivism pattern only marginally differed between the two subgroups over a period of 24 years. We will discuss the findings with regard to four topics: (i) study design, (ii) the term MDSO in relation to clinical offender characteristics, (iii) other offender characteristics and index offense data, and (iv) criminal recidivism.

**Study Design**

We chose to use a study design based on psychiatric assessments from FPIs. Most studies in sex offender research are either based on register data or clinical assessments. The use of register data allows for large data sets but usually lacks the details of a clinical assessment. For example, mental disorders defined as “previous hospitalization,” sometimes as broadly framed as during the subject’s entire lifetime, imprecisely describe the degree of how an offender is affected by a mental disorder in relation...
FIG. 3—Kaplan–Meier survival analyses comparing time in months until first postindex offense reconviction for a sexual (a), violent (b), or general offense (c) for mentally disordered sex offenders (MDSOs) with a psychotic disorder (red line) and MDSOs without a psychotic disorder (blue line). Intersecting marks on the lines indicate the end of an individual follow-up period, also known as a censored case. [Color figure can be viewed at wileyonlinelibrary.com]
to their sex offense. By using clinical investigations, such as FPI reports, a more thorough and concurrent clinical picture may be presented. This enabled us to characterize two subgroups of MDSOs, one with psychotic disorders and one without. Most studies on general sex offenders do not include offenders with psychotic disorders, or do not specifically discuss this subgroup (3,10,24,25). Even in studies on MDSOs, data on offenders with psychotic disorders are rarely consistent (12,26-31). The few studies that exist on sex offenders with psychotic disorders tend to focus on either diagnosis versus risk of offending (8,32,33), theoretically driven typologies, or clinical characterizations aimed at treatment (7,27,34,35). Three previous follow-up studies on MDSOs with psychotic disorders (6,9,36) all present recidivism rates in broad terms, with little to no possibility for discerning recidivism patterns during the follow-up period. The average follow-up period in previous studies on sex offenders with no mental disorders has been four to 5 years (24), although there are studies with follow-up periods spanning more than two decades (29). To our knowledge, no previous follow-up studies presenting survival rates and time until new offense have specifically targeted sex offenders with psychotic disorders. Longer follow-up studies on MDSOs do exist, but are few and tend to either not specifically describe sex offenders with psychotic disorders or present recidivism rates only summarily for the entire follow-up period.

**MDSOs and Their Clinical Offender Characteristics**

Almost all subjects in our study received one or more diagnoses of mental disorders during the FPI, and the total sample can therefore be described as an MDSO cohort proper. On average, the offenders had two psychiatric diagnoses, which further emphasizes the clinical burden carried by this particular group of offenders. This is in accordance with other psychiatrically assessed offenders in Sweden, most of which are assigned more than one psychiatric diagnosis (37).

Our MDSO cohort contained only a few subjects with affective and bipolar disorders which is in contrast to some findings (7,36,38), but in agreement with another Swedish study (8). Notably, the description for bipolar disorder was changed between the DSM versions used during 1993 and 1997, which may have impacted how these subjects were viewed clinically during the FPI. The different prevalence rates of affective and bipolar disorders are, however, most likely due to actual clinical diversity of MDSO populations.

Among subjects who suffered from a psychotic disorder at the time of the FPI, almost half were diagnosed with schizophrenia. A large number, however, was diagnosed with a nonspecified psychotic disorder, possibly due to the relatively short timeframe during which an FPI is undertaken. Unless a history of psychotic symptomatology is described in the medical records prior to the index offense, a 4-week observation period is not enough to properly ascribe a diagnosis of schizophrenia. It is therefore likely that the psychiatrists in question chose a less specific diagnosis within the psychotic disorder spectrum. Despite considerable variations (7), a recent review found that 5–10% of the subjects in sex offender samples are diagnosed with psychotic disorders (13), with similar prevalence rates in a Swedish context (8). Logically, forensic treatment samples demonstrate higher prevalence rates (7,13).

In the present study, contrary to the findings of Alish et al. (6), MDSOs with a psychotic disorder demonstrated lower rates of both personality disorders and substance use disorders. Conversely, the offenders without a psychotic disorder displayed a high prevalence of both personality disorders and substance use disorders, which is in agreement with previous research (26). When accounting for the entire cohort in our study, more than half of the subjects were diagnosed with either a personality disorder or a substance use disorder, comparable to previous findings on MDSOs (7), and slightly higher than nonpsychiatric samples of sex offenders (8).

**Other Offender Characteristics and Index Offense Data**

In addition to an extensive psychiatric comorbidity, the MDSOs in the present study were burdened by developmental and criminal history factors. However, sex offenders with a psychotic disorder were less likely to have been institutionalized during their childhood, to be intoxicated during the index offense, and to be diagnosed with a paraphilic disorder.

Disruptive behaviors during childhood, a well-known antecedent of future adaptive impairments such as antisocial behavior and substance use, were common in our cohort, although less so than in previous studies (7). The lower rates of personality disorders and substance use disorders in the MDSO subgroup with psychotic disorders may thus be linked to a lower prevalence of childhood institutionalization in that subgroup. The high rate of childhood institutionalization may be of importance for, not only personality development and risk of antisocial behavior, but also for the treatment outcome of psychotic disorders in adulthood (39). With regard to the index sex offense, the fact that substance intoxication was more common in MDSOs without a psychotic disorder is most likely related to the higher prevalence of substance use disorders in that group.

Paraphilic disorders were less frequent in our cohort compared to most previous studies on MDSOs (7,26). Similar to the findings of Alish et al. (6), paraphilic disorders were significantly less prevalent among MDSOs with psychotic disorders compared to MDSOs without psychotic disorders. Actually, none of the MDSOs with a psychotic disorder was diagnosed with a paraphilic disorder at the time of the FPI. Populations with a higher degree of psychotic disorders, however, tend to have lower rates of paraphilic disorders in general (7), a likely explanation being that many studies do not differentiate between sex offenders with different victim preferences. Most, if not all, sex offenders with underage victims are diagnosed with pedophilic disorder, which is categorized as a paraphilia. Studies with mixed sex offender populations, with regard to the age of the victims, inadvertently present higher rates of paraphilic disorders. In fact, only two of the MDSOs in the present study were diagnosed with a pedophilic disorder.

About one-fourth of the MDSOs without a psychotic disorder in the present study were sentenced to forensic psychiatric care. The practice of forensic psychiatric assessment of personality and paraphilic disorders has changed in Sweden since the time of the FPI in the present study. During the inclusion period in the 1990s, persons with severe personality and paraphilic disorders were more likely to be assessed as having a severe mental disorder and to be recommended for forensic psychiatric care to the courts. This is exemplified by Alish et al having noted that “in some cases the examining professional took the bizarre nature of the sadistic acts as prima facie evidence of mental illness,” regarding sex-related murders (6). Speculatively, in an attempt to explain the subject’s motive in the absence of psychosis, the subject may instead have been diagnosed with complex combinations of personality disorders. In fact, several
Recidivism

After the index offense, we were able to follow more than half of the MDSOs for two decades, and one in ten for the entire study period of 24 years. Roughly half of the subjects committed some type of new offense. Most reconvictions occurred during the first 5 years, with fewer new convictions the following 5 years, and only a limited number of reoffenses for the remainder of the follow-up period. We separated the types of reoffenses in three groups and found that the MDSO cohort reoffended in sexual, violent, and general offenses at rates of 17%, 39%, and 38%, respectively. Sex offense reconvictions were thus the least common type of recidivism for MDSOs both with and without a psychotic disorder. Instead, the subjects were reconvicted for all three offense types, in line with the theory of offender versatility (24,37,40,41). MDSOs with psychotic disorders demonstrated a longer time until first reoffense in general crime, but no other statistically significant differences were found. One possible explanation for this finding is that the sex offenders with psychotic disorders had lower rates of substance use disorder, a condition known to be associated with both property and drug offenses, which constituted the majority of the general reoffenses.

Recidivism rates for sex offenses have been found to depend heavily on the population examined, the length of the follow-up period, and the way recidivism is defined (42). It is therefore difficult to form a coherent picture of sex offender recidivism in general, and of recidivism in MDSOs in particular. Recidivism in general sex offenders with adult victims has been studied thoroughly in prison populations, with recidivism rates of 1–10% over 2 years, 4–25% over 5 years, 7–35% over 10 years, and 24–45% over 15 years of follow-up (3,10,24-25,43).

Regarding MDSOs with adult victims, recidivism rates are less well-established. Langevin et al followed a large group of clinically evaluated sex offenders for more than 25 years (29). Only 53 offenders targeted adult victims, and in this subgroup 47% reoffended during the follow-up period. Kingston et al followed another large group of sex offenders who were clinically assessed (12). A minority of 86 offenders did not have underage victims, and out of these 16.7% reoffended during the 20-year follow-up period. However, neither of the two studies included categorical diagnoses of mental disorders, and the latter study did not present clinical data separately for offenders with adult victims and offenders with underage victims. Our study showed recidivism rates in sex offenses most similar to the study by Kingston et al.

There are few previous recidivism studies on MDSOs providing prevalence rates of psychotic disorders. Langström et al. (9) studied all 1,215 males convicted of a sex offense in Sweden and sentenced to prison. They were followed for up to 8 years, presenting a sex offense recidivism rate of 5.9%, and clinical data were retrieved from a nationwide register (i.e., diagnoses were not ascribed in connection to the index offense). Roughly half of the subjects had committed a sex offense against an adult victim, and 1.7% of these offenders were previously diagnosed with a psychotic disorder. Alish et al studied 36 sex offenders with schizophrenia who were clinically evaluated after committing a sex offense at any point in time over a 5-year period (6).

In a retrospective approach, any previous conviction of a sex offense was declared the index offense, and 33.5% of the subjects with schizophrenia were considered reoffenders by this definition. However, both Langeström et al. and Alish et al. presented their recidivism rates for both sex offenders with adult victims and sex offenders with underage victims, where the latter constituted roughly half of the subjects in both studies. This contrasts to the present study, where only sex offenders with adult victims were included. Lastly, Cuddeback et al followed 127 sex offenders, diagnosed with either a psychotic disorder or a bipolar disorder, for 3 years after release from prison (36). Clinical data were retrieved both from prison and community records as well as from clinical assessments. Unfortunately, recidivism was defined as failure to follow the rules of community supervision, which did not equate to a new sex offense, and in the end almost all subjects (98.9%) committed a violation.

In summary, there exists little clear-cut data on sexual reoffending in sex offenders with psychotic disorders targeting adult victims. To our knowledge, the present study for the first time presents survival rates and recidivism patterns for new sex offenses, violent offenses, and general offenses in a subgroup of MDSOs with psychotic disorders.

Limitations

The study is limited by the sample size of 146 MDSOs. According to the National Council for Crime Prevention, 857 individuals of both sexes, although female sex offenders are extremely uncommon, were convicted for adult victim sex offenses during the inclusion period of the study (1993–1997). Out of these, 790 individuals were sentenced to correctional treatment and 67 to forensic psychiatric care (Fig. 1). In other words, this study included 17% of all sex offenders with adult victims convicted during the inclusion period, comprising 94% of sex offenders sentenced to forensic psychiatric care and 11% of sex offenders sentenced to prison or probation. Thus, it seems plausible that the study comprised almost all cases of MDSOs with a psychotic disorder in Sweden during the time of the study. Another possible limitation to our study may be our method for calculating time until reoffense, namely the time from the conviction date of index offense until the conviction date for the new offense. This period included any portion of time a subject may or may not have spent in prison or in forensic psychiatric care, that is, not only when the subjects were released into society which is a common conceptualization of time at risk for recidivism. Our rationale for this choice was that offenders do not necessarily cease committing new offenses while imprisoned, on probation, or while undergoing psychiatric treatment. For example, in a recent report by the Swedish National Council for Crime Prevention, during 2009 through 2017, 34% of patients committed a new offense while undergoing forensic psychiatric treatment (44). Furthermore, 13% of the patients were sentenced for a new offense during the same period.

Conclusions

This study investigated a cohort of MDSOs in Sweden, consisting of subjects with and without psychotic disorders. The recidivism of the offenders was followed for up to 24 years. The MDSOs were severely burdened by clinical, developmental, and
criminal history factors. MDSOs with psychotic disorders only marginally differed from those without psychotic disorders with regard to clinical factors, developmental factors, criminal history factors, index offense factors, and relapse patterns. Future research on sexual reoffending should focus on follow-up periods of 5–10 years since most offenders appear to recidivate during this timeframe.

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