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When sexual offender treatment in prison-based social-therapeutic treatment is not completed: Relationship to risk factors and recidivism after release

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Abstract

Background: Various studies have demonstrated that people who do not complete sex offender treatment have higher recidivism rates than completers or untreated controls. The mechanism behind this association, however, remains unclear. One explanation is that responsivity issues are more prevalent in high-risk offenders, making treatment failure and recidivism more likely, especially if treatment intensity is insufficient to match criminal needs. In addition, dropout may have a negative effect on offenders by increasing feelings of frustration or self-doubt.

Aims: To retest for a link between treatment discontinuation and recidivism by sex offenders and analyse the mechanisms mediating the link between treatment discontinuation and their recidivism. We hypothesise that non-completion has a negative effect on recidivism after controlling for *a priori* differences in risk of recidivism.

Methods: We analysed data from all sex offenders released from Bavarian prisons between 2004 and 2015 who had participated in prison-based social-therapeutic treatment and compared non-completers (n = 100) to offenders ending treatment as planned (n = 428). Criminal risk, offence char-

acteristics, and treatment-related propensities were measured by a comprehensive assessment instrument, including the Static-99. Recidivism data were obtained from Federal Official Records with an average time-at-risk of 9.43 years (SD = 3.29).

Results: Treatment non-completion was significantly associated with recidivism after controlling for criminal risk, offence characteristics and treatment duration. This was mainly accounted for by men who had spent at least two years in treatment before premature termination and return to an ordinary prison setting.

Conclusions: Our findings aid understanding the potentially negative impact of discontinuing social-therapeutic treatment for male sex offenders; termination after substantial commitment may be particularly problematic. Future research should encompass large enough sample sizes to study details behind staff or prisoner decisions to return the prisoner to ordinary prison conditions and to mitigate harms by loss of privileges.

KEYWORDS
attrition, offender treatment, offence characteristics, prison, recidivism, sex offenders

1 | BACKGROUND

After decades of research there is still debate about the effectiveness of sex offender treatment (Hanson et al., 2009; Harrison et al., 2020; Schmucker & Lösel, 2015; D. B. Wilson, 2016). A recent meta-analysis by Schmucker and Lösel (2017) reported a mean positive effect of sex offender treatment from 27 studies comparing treated offenders to an untreated control group. On average, sexual recidivism of treated offenders was 10%, but 14% among the untreated controls. The rates for general recidivism were higher, but without significant difference between the groups. A more differentiated view showed that positive outcomes in terms of recidivism were mainly associated with community-based treatment and treatment in forensic psychiatric hospitals. In contrast, where the sex offender treatment had been in prison, there was no significant advantage in terms of recidivism for those receiving it compared with those not. A meta-analysis by Gannon et al. (2019) did find an advantage for treatment in prison even after considering the negative results found by Mews et al. (2017), but they included studies in terms of less methodological rigour than the review from our Centre.

One important issue in offender treatment is non-completion. In a meta-analysis, Olver et al. (2011) report attrition rates between 20% for general prison-based treatment and 28% for sex offender programmes. The 34 studies of sex offender treatment included in the meta-analysis were, however, very heterogeneous. Even in prison-based sex offender treatment, attrition rates show a wide range from 11% (Latendresse, 2006) to 54% (Pelissier, 2007). Olver et al. (2011) suggest that several factors contribute to differences in attrition rates, including criteria and operationalisation of dropout, programme type and treatment setting. Further, most studies, such as Pelissier (2007), Clegg

et al. (2011) or Geer et al. (2016), examined participation in voluntary treatment. Less is known about attrition in mandated treatment for sex offenders, especially in non-English speaking countries.

Dropout has various negative consequences for the client, for service delivery, for other clients and for staff morale (Howells & Day, 2007; McMurran & Ward, 2010). It limits the effectiveness of offender treatment and may contribute to an uneconomical use of resources (McMurran & Theodosi, 2007). Non-completers are also relevant for public safety concerns as they are most likely to reoffend. In their meta-analysis, McMurran and Theodosi (2007) found a small, albeit significant effect for treatment attrition in institutional offender programmes, with non-completers being more likely to reoffend than untreated controls. Olver et al. (2011) found attrition in sex offender treatment to be linked to general, but not violent or sexual recidivism. As baseline differences in risk between non-completers and controls could not always be ruled out, these results should be interpreted with caution (McMurran & Theodosi, 2007).

Mechanisms behind this relationship remain unclear, but several possibilities have been proposed. First, non-completers are considered as a high-risk and high-need group with specific responsivity difficulties (Olver et al., 2011). Among prison-based sex offenders in treatment, non-completers were more likely to have antisocial personality traits and/or high psychopathy scores and substance-related problems than completers (Brunner et al., 2019; Carl et al., 2020; Moore et al., 1999; Olver & Wong, 2009, 2011). In contrast, dropout was independent of age, education or race (Brunner et al., 2019; Clegg et al., 2011; Olver & Wong, 2011; Pelissier, 2007; Shaw et al., 1995). Neither static risk for (sexual) reoffending measures nor 'sexual deviance' were associated with non-completion (Beyko & Wong, 2005; Carl et al., 2020; Geer et al., 2016; Howard et al., 2019; McGrath et al., 2003; Nunes & Cortoni, 2007). Less information is available on the association between offence characteristics and treatment attrition. Crime-specific behaviours, such as planning or choice of victim, are related to both propensity for therapy and recidivism among sexual offenders (Goodwill et al., 2016; Lehmann et al., 2016, 2018). In the meta-analysis by Olver et al. (2011), sex offenders had a higher risk of treatment dropout if they victimised children, if the victim were male and if they were accused of a non-contact sex offence, but the underlying studies showed much heterogeneity.

A second treatment dropout explanation may lie in dose-response-relationship. For offender treatment, 'dose' may be defined by length of stay within a specific treatment programme, the number of sessions attended, the intensity of programming or level of interpersonal interactions (Haerle, 2014; Kroner & Takahashi, 2012). To date, there is little empirical evidence on the most appropriate 'dose' of 'treatment' for offenders (Bourgon & Armstrong, 2005) and recommendations vary across different settings and programmes (Day et al., 2019). Even results of meta-analysis are inconclusive: Gannon et al. (2019) suggest that higher programme intensity is linked to lower recidivism rates, whereas Schmucker and Lösel (2017) did not find such an association. According to Bonta and Andrews (2017), effective offender treatment should be adapted to the offenders' criminal risk level; high risk offenders need more intensive treatment than low risk offenders. In a study by Sperber et al. (2012) with adult male offenders, treatment 'dose' explained a significant amount of variance in recidivism over and above that from control variables. For offenders who spent more than 200 hr in group treatment, risk of recidivism was 38% lower than that of offenders with less than 100 hr. The effect was even larger for high-risk offenders. In a second study, the authors found that the 'dose'-recidivism relationship was not linear, but moderated by risk and reaching a clear saturation point where more treatment had no apparent effect (Makarios et al., 2014).

In sum, medium- to high-risk offenders who receive less than optimal treatment duration or intensity may not benefit and may even deteriorate. Thus, higher recidivism rates among non-completers could be interpreted as an effect of insufficient treatment intensity. Most studies do not consider treatment duration or intensity as a relevant factor, nor between treatment shortage or institutional barriers and participant choice, despite Olver et al. observing as long ago as 2011 that there is a 'pressing need' (p. 17) for treatment outcome studies with more detailed information about extent of participation. Further, it may be that treatment participants are damaged by implications of failure or stigmatisation by being called 'drop-outs'. According to McMurran and McCulloch (2007), offenders dropping out of treatment tend to feel devastated, de-motivated, and unsatisfied. Supervisors may reinforce that negativity by

designating 'dropouts' as 'problem cases' and deny them privileges such as conditional leave or early release (Endres et al., 2016), reinforcing negative processes that complicate the sex offender's reintegration into society (Crank, 2018; Link et al., 1989; Mingus & Burchfield, 2012).

Taken together, these studies suggest that sexual offenders discontinuing treatment are at higher risk of reoffending, but relationships between criminal risk, treatment intensity, stigmatisation and benefit denial with treatment dropout remain unclear. Our aim was to compare sex offenders who left treatment before completion with similar men who left when therapists and supervisors considered it to be complete, in terms of risk of recidivism estimates, offence characteristics, treatment duration and actual recidivism. Our hypothesis was that even after controlling for a priori differences in common criminological risk factors and for treatment 'dosage', treatment dropout would have a negative effect on recidivism.

2 | METHODS

2.1 | Ethics

Ethical and legal issues of our study were approved by the experts of the Bavarian Ministry of Justice. Additionally, our gathering of reoffending data was approved by the German Federal Central Crime Register of the Federal Ministry of the Interior that applies very strict rules on data protection. Accordingly, no individual data are reported in our study.

2.2 | Sample

Our potential sample consisted of all 528 male adult sex offenders who were released from a Bavarian prison between 2004 and 2015 who had participated in treatment in a prison-based social-therapeutic unit (STU) during their sentence, 100 (19%) of whom had not completed the treatment as designed and 428 who had completed. Recidivism data were, however, available for 442 of these men.

2.3 | Treatment setting

According to the Bavarian Prison Act (Article 11), all sexual offenders with a prison sentence of 2 years or more should be transferred to a STU during their sentence. In exceptional cases, violent offenders or sex offenders with a sentence of under 2 years may also participate if they are otherwise capable of doing so and the therapeutic measures are appropriate to reducing reoffending. Prisoners with insufficient cognitive ability or language skills, a predominant psychiatric or substance-related disorder or a fundamental lack of responsivity, including denial of the offence or absence of motivation to change, may be denied admission to the STU.

Social-therapeutic facilities in Germany are separate units within mainstream prisons or, more rarely, independent prisons that are similar to criminal justice run therapeutic communities (TCs) in Britain and North America (e.g., Grendon Prison in England; Genders & Player, 2010), but they are more hierarchically structured and prison-like than the originally democratic TCs (Lipton, 2010). The social-therapeutic approach in Germany contains typical prison structures combined with a range of individual and group therapy programmes, a higher staff-prisoner ratio, and release preparation depending on therapeutic progress (Lösel, 2012; Lösel & Egg, 1997). In Bavaria, all seven STUs for adult sex offenders are separate units inside a prison with six facilities treating only sex offenders and one facility both sex and other violent offenders. A crucial aspect of the STU is to ensure a supportive therapeutic climate and to consider the offenders' complete social environment, within and outside

prison. This includes more contact between prisoners, more hours for external visitors, more leaves, and release planning. Upon entering the STU, each offender passes an assessment phase with standardised measures of static and dynamic risk, cognitive competences, and personality factors (Spöhr, 2009). Each offender then receives an individualised treatment plan informed by this assessment, with different modules tailored to his risk level, needs and responsivity factors (Bonta & Andrews, 2017). Social-therapeutic treatment in Bavaria comprises, on average, one hour of individual treatment and five hours of group-based treatment per week, daily work, vocational courses, group leisure activities, and sports (Carl et al., 2019). The aim for psychotherapeutic treatment is to change dynamic risk factors such as dysfunctional coping strategies, cognitive distortions, anger and emotion regulation, sexual education, social skills, and relapse prevention (see Wößner & Schwedler, 2014). The programme is typically designed for a duration of 2 years, however, there are exceptions of 12 up to 36 months, depending on individual sentence length. Offenders who complete social-therapeutic treatment are usually released directly to the community from the STU at the end of their sentence, non-completers are transferred back to a regular prison setting.

If offenders drop out from the STU or are denied admission to it, they may instead participate in individual or group-based treatment in regular prisons, conducted by psychologists or prison staff.

2.4 | Data

Our data are from a larger evaluation study of sex offender treatment in Bavaria, Germany (Lösel et al., 2020). From 2004 to 2015, prison staff (mostly psychologists) filled in a comprehensive questionnaire with 72 variables for every released adult sex offender, according to a detailed manual. All items in the questionnaire were rated according to prison files at the time of release.

The original database includes biographical data, offence-related variables, psychiatric and clinical data (including diagnosis and substance use), items on conduct in prison (e.g., type and duration of treatment participation, disruptive behaviour, ratings of therapeutic progress) and variables on the expected environment after release (e.g., family support, social integration, accommodation). Demographic information includes age (at release), professional qualification at the time of the offence (1 = *never started a vocational training or terminated training prematurely*, 0 = *completed at least one vocational training or is still in training*) and migration status (0 = *no migration status*; 1 = *immigrant or at least one parent immigrated*). Data on criminal history include the number of prior convictions and of prior convictions with a sexual offence. Offence characteristics were dichotomously coded for all prior sex offences that were documented in the official records (1 = *yes*, 0 = *no*). One exception is the item 'conviction for a non-sexual violent offence (in coincidence with a sexual offence)', which was only coded for the current conviction. Offence characteristics were type of victim, use of violence, use of weapon or death threat, at least one stranger as victim, at least one male victim, and being under the influence of alcohol during the sexual offences.

Also included are all items of the Static-99 (Hanson & Thornton, 1999) to account for the offenders' static risk. In 2012, the Static-99 had been revised, changing the coding rules for age at release to better account for its relationship with sexual recidivism (Helmus et al., 2012). Some studies, however, suggest cultural differences in terms of prediction accuracy. For example, a study in Austria showed that the previous version of the Static-99 performed better in predicting sexual recidivism of prisoners than the age-corrected version (Eher & Rettenberger, 2013). In our study, the revised coding rules resulted in almost half of the offenders being in the low-risk group (Lösel et al., 2020). Therefore, we used the original version of the Static-99.

Treatment completion was rated by prison staff at release. Offenders were categorised as 'non-completers' if they started social-therapeutic treatment but ended treatment prematurely because of low compliance or motivation, disruptive behaviour, or insufficient treatment readiness that had not been detected during prior assessment (e.g., cognitive impairment or deficient language skills). Completers were offenders who were mutually regarded as having

completed treatment or if they had to finish only for organisational reasons (e.g., early release, lack of resources). Offenders who left social-therapeutic treatment within the probationary period of three months were not included in the analysis, as they were classified as 'non-participants'.

Information on reconvictions after release was obtained from the German Federal Central Crime Register. We differentiate between general recidivism (any new conviction), severe recidivism (any new conviction of at least 2 years of imprisonment, custody in a forensic clinic, or preventive detention) and sexual recidivism (conviction for a sexual offence). The time-at-risk for our sample started with the offenders' release and ended with the last date of data collection (February 2019). It ranged from 3 to 15 years (Mean (*M*) = 9.43, SD = 3.29).

2.5 | Analytic plan

We compared completers and non-completers in terms of demographic and offending characteristics using X^2-test for nominal data and *t*-test for interval scaled variables. To control for shared variance between the independent variables, we conducted a logistic regression analysis on treatment completion with all demographic and offence-related items as independent variables. Year of release was also included to control for cohort effects. As some of the variables (e.g., male victim, stranger victim) were part of the Static-99, its sum score was not included in the model to avoid multicollinearity.

Since the recommended length for social-therapeutic treatment is 24 months in most facilities, we further differentiated between early termination (<24 months) and late termination (24 months or longer). The sample was divided into four groups depending on treatment completion and duration (early/late completer, early/late non-completer). Pairwise *z*-tests were used to compare recidivism rates between the four groups. The *p*-values were adjusted for false discovery rate (Benjamini–Hochberg procedure).

A hierarchical logistic regression was used to analyse if treatment discontinuance had an incremental association with recidivism after including demographic data, year of release, offending characteristics and treatment duration as independent variables. In a first step we added demographic data, offending characteristics and year of release, in a second step treatment duration, and in a third step non-completion. As the recidivism rates for sexual or for severe recidivism were very small, they could not be analysed in a multivariate model.

IBM SPSS Statistics for Windows, version 26 (IBM Corp.) was used to conduct statistical analyses.

3 | RESULTS

The men in the sample were all aged between 20 and 73 years and serving prison sentences of between 1 and 15 years (*M* = 4.48; SD = 1.94). Most had sexually victimised children (*n* = 303, 58%); 150 (29%) had exclusively victimised other adults; 49 (9%) had had both adult and child victims. A very small group (*n* = 25, 5%) had been convicted of hands-off sexual offences, for example, exhibitionism or distribution of indecent images of minors.

Table 1 shows the characteristics of the sample and confirms that on most demographic and offending characteristics treatment completers and non-completers were similar. They differed significantly only in the number of prior convictions for any and for sexual offences, in the percentage of stranger victims and in alcohol intoxication during the index offence. Completers had fewer prior convictions, were more likely to have victimised strangers and were more likely to be intoxicated by alcohol during their offences. No differences emerged in Static-99 scores, age, sentence length, or other risk variables.

TABLE 1 Means, standard deviations and frequencies compared between those regarded as having completed treatment and non-completers

	Completers (n = 428)		Non-completers (n = 100)		
Variables	***M (SD)***	**%**	**M (SD)**	**%**	**χ^2/*t***
Age	42.91 (11.53)	-	44.88 (12.50)	-	−1.44
No professional qualification	-	30	-	29	0.06
Migration background	-	13	-	19	2.71^{+}
No. of prior sexual convictions	1.46 (1.32)	-	1.61 (1.37)	-	−0.95
No. of prior convictions	2.51 (4.40)	-	3.87 (5.68)	-	−2.23*
Conviction for violent offence	-	19	-	29	5.48*
Current sentence length	53.81 (24.14)	-	52.64 (18.67)	-	0.43
Only child victims	-	58	-	56	0.10
Only adult victims	-	29	-	28	0.10
At least one stranger as victim	-	24	-	13	5.65*
At least one male victim	-	22	-	23	0.02
Use of force/violence	-	17	-	16	0.06
Use of weapon/death threat	-	21	-	24	0.50
Intoxicated by alcohol	-	20	-	9	5.91*
Static-99	2.49 (2.15)	-	2.73 (2.23)	-	−0.99

**p < 0.01, *p < 0.05, ^{+}p < 0.10.

TABLE 2 Logistic regression with treatment completion/non-completion as the dependent variable

Variables	***B* (SE)**	**Wald**	**OR**	**95% KI**	
Age	0.03 (0.01)	3.95	1.03*	1.00	1.05
No professional qualification	0.12 (0.30)	0.17	1.13	0.63	2.02
Migration background	0.79 (0.35)	4.95	2.20*	1.10	4.39
No. of prior sexual convictions	0.06 (0.10)	0.31	1.06	0.87	1.29
No. of prior convictions	0.07 (0.03)	5.63	1.07*	1.01	1.14
Conviction for violent offence	0.81 (0.36)	5.14	2.25*	1.12	4.55
Sentence length	−0.01 (0.01)	0.95	0.99	0.98	1.01
Only child victims	−0.24 (0.40)	0.37	0.78	0.36	1.71
Only adult victims	−0.21 (0.47)	0.20	0.81	0.32	2.04
At least one stranger as victim	−1.25 (0.44)	7.88	0.29**	0.12	0.69
At least one male victim	0.04 (0.32)	0.03	1.04	0.56	1.95
Use of force/violence	−0.25 (0.41)	0.37	0.78	0.35	1.75
Use of weapon/death threat	0.50 (0.37)	1.89	1.65	0.81	3.39
Intoxicated by alcohol	−0.94 (0.43)	4.81	0.39*	0.17	0.90
Year of release	−0.06 (0.04)	2.48	0.94	0.87	1.02

Note: n = 456. Positive values for dichotomous data (OR > 1) stand for presence of the factor, negative values (OR < 1) for its absence.

**p < 0.01, *p < 0.05.

3.1 | Multivariate analysis of variables associated with completion/non-completion

The logistic regression model (Table 2) was significant ($\chi^2(15) = 39.55$, $p < 0.01$) and encompassed 14% of the variance in completion/non-completion. The Hosmer–Lemeshow Test was not significant, indicating a fair model fit. Men who did not complete were younger, more likely to have a migration background, had more prior convictions, were more likely to have been convicted of a violent offence concurrently with the index sex offence, less likely to have victimised strangers and less likely to be intoxicated by alcohol during their sex offences. Only 8% of the non-completers were correctly classified by this model although 99% of the completers were.

3.2 | Treatment completion and recidivism

Overall, 168 men (38%) reoffended within our observation period, 128 (35%) in the treatment completion group and 40 (52%) among the non-completers. This difference was significant ($\chi^2(1) = 7{,}69$, $p < 0.01$). In terms of serious recidivism or sexual recidivism, completers and non-completers did not differ significantly. Twenty-four (7%) completers committed at least one further serious offence as did 8 (10%) non-completers; 29 (10%) completers committed at least one new sexual offence as did 9 (12%) non-completers.

Time-at-risk did not differ between the groups ($M = 112.63$, SD = 40.40, for completers; $M = 117.85$, SD = 35.54 for non-completers), $t(440) = -1.05$, $p = 0.30$.

3.3 | Treatment duration and recidivism

As expected, offenders whose treatment came to a planned end spent more time (months) in the STU ($M = 29.48$, SD = 10.17) than those who discontinued treatment ($M = 16.28$, SD = 10.54), $t(523) = 11.59$, $p < 0.001$. Early and late dropouts did not differ in age, professional qualification, Static-99 score, time at risk, number of prior convictions, or offence characteristics. The only difference was found for migration background, with all non-completers with a migration background being in the early dropout group ($\chi^2(1) = 5.86$, $p = 0.02$).

Recidivism rates differed significantly between all four groups, $\chi^2_3 = 10.18$, $p = 0.02$ (see Table 3) with late non-completers being most likely to reoffend. There was no difference in recidivism by duration of treatment within the group of completers ($z = 0.05$, $p = 0.96$). On the other hand, men discontinuing late differed significantly from early completers ($z = 2.53$, $p = 0.04$) and late completers ($z = 2.73$, $p = 0.04$). Early dropouts did not differ from completers ($z = -1.52$, $p = 0.13$ for early completers, $z = -1.84$, $p = 0.07$ for late completers). The difference between early and late non-completers approached significance in a one-tailed comparison ($z = -1.52$, $p = 0.07$).

TABLE 3 A test of associations between treatment completion and duration and any recidivism after release

Completion of social-therapeutic treatment	*N*	Recidivism in %
Planned completion after		
<24 months	91	35.2[a]
24 months or more	272	34.9[a]
Non-completion after		
<24 months	61	47.5[a,b]
24 months or more	16	68.8[b]

Note: $n = 440$.

[a, b]Different superscripted letters indicate a significant difference of $p < 0.05$ in a pairwise z-test (adjusted for false discovery rate).

3.4 | Recidivism, treatment completion and duration, and potential confounders

The hierarchic logistic regression, with general recidivism as the dependent variable, was significant in all three steps (Table 4). Duration of treatment (in months) did not add significantly to the model, but dropout did, and 'explained' 2% of variance in recidivism. The model correctly classified 62% of recidivists and 88% of non-recidivists.

Besides treatment completion, the men were more likely to reoffend with any offence if they were younger, if they had more prior convictions—for any crime and for sexual offences—and if they had no professional qualification. Sentence length and duration of treatment approached significance after the final step.

4 | DISCUSSION

Our findings are consistent with the hypothesis that when sex offenders chose to terminate their treatment prematurely or have it terminated for reasons of disciplinary or safety problems, recidivism is more likely than when they complete treatment or end it only because their prison term has come to an end. Men who failed to complete treat-

TABLE 4 Logistic regression with recidivism/not recidivism as the dependent variable and treatment completion/non-completion together with potential confounders entered into the model as independent variables

	Step 1	Step 2	Step 3		
Variables	**OR**	**OR**	**OR**	**95% KI**	
Treatment duration		1.22	1.74^{+}	0.94	3.19
Dropout			2.86**	1.37	5.95
Age	0.95**	0.95**	0.94**	0.92	0.97
No professional qualification	1.92*	1.92*	1.85*	1.06	3.22
Migration background	0.67	0.69	0.65	0.30	1.42
No. of prior sexual convictions	1.50**	1.50**	1.47*	1.08	1.99
No. of prior convictions	1.17**	1.17**	1.16**	1.09	1.24
Conviction for violent offence	1.51	1.47	1.31	0.64	2.67
Current sentence length	0.99	0.99	0.99^{+}	0.97	1.00
Only child victims	1.38	1.33	1.35	0.56	3.27
Only adult victims	1.50	1.45	1.50	0.57	3.92
At least one stranger as victim	0.67	0.65	0.72	0.37	1.41
At least one male victim	1.37	1.34	1.29	0.70	2.39
Use of force/violence	1.51	1.57	1.70	0.81	3.55
Use of weapon/death threat	1.88	1.90^{+}	1.78	0.88	3.59
Intoxicated by alcohol	0.94	0.98	1.13	0.58	2.20
Year of release	0.84**	0.84**	0.83**	0.77	0.91
χ^2	147.22**	147.74**	155.86**		
$\Delta\chi^2$		0.52	8.12**		
Nagelkerke R^2	0.40	0.40	0.42		
Nagelkerke ΔR^2		0.00	0.02		

Note: $n = 416$. Positive values for dichotomous data (OR > 1) stand for presence of the factor, negative values (OR < 1) for its absence.

**$p < 0.01$, *$p < 0.05$, $^{+}p < 0.10$.

ment were over twice as likely to have committed further offences as those who completed. Discontinuation of treatment after two years was associated with higher recidivism than early termination.

4.1 | Regular termination versus dropout

In our study, the dropout rate was rather low (19%) compared to sex offender treatment in the community, but similar to mandated and prison-based treatment (Olver et al., 2011; Olver & Wong, 2011). Our study excluded men who had dropped out during the probationary period because these are classified as 'never started' in Bavaria, so it may underestimate attrition. Nevertheless, the low non-completion rate is a positive indicator of good pre-treatment selection and its implementation.

Treatment non-completers were younger, more likely to be immigrants, had more prior convictions, were more likely to be convicted for a non-sexual violent crime concurrently with the index sex offence, less likely to have victimised strangers, and less likely to use alcohol during the sexual offences. The groups did not differ in terms of static risk measured by the Static-99. This is in line with previous findings concluding that treatment discontinuance is more prevalent among offenders who have already been involved in the criminal justice system (McGrath et al., 2003; Moore et al., 1999; Olver et al., 2011). The small amount of explained variance indicated, however, that static preconditions are less relevant for identifying non-completers than more dynamic measures, for instance aspects of treatment responsivity (Carl et al., 2020; Olver et al., 2011; Olver & Wong, 2011; Pelissier, 2007).

As suggested by previous studies, treatment non-completers had higher recidivism rates than offenders terminating regularly (McMurran & Theodosi, 2007; Olver et al., 2011), even after controlling for variables of criminal risk and treatment duration. If the difference resulted primarily from insufficient treatment 'dose', it may be expected that men who left the therapeutic institution early would be most likely to reoffend, but our results suggested the opposite. For those terminating regularly, recidivism was independent of treatment duration.

4.2 | Treatment termination as a negative event

Being excluded from treatment, especially in a later phase, may pose a threat to the offenders' self-concept and their motivation to change (McMurran & McCulloch, 2007). This may be most relevant for offenders that stay in the STU for more than two years as they have already invested personal resources and were encouraged to adapt to new behavioural strategies that may be associated with a shift in self-awareness. Dropping out of treatment and returning to a regular prison may diminish or even fully destroy these processes with offenders re-adapting to their 'criminal' identity (Crank, 2018). In addition, offenders who are excluded from social-therapeutic treatment lose granted privileges such as early release or frequent leaves that serve as important motivators in prison-based treatment (McMurran & Ward, 2004), which may be a further stimulus for anger or antisocial behaviours.

Generally speaking, evaluation of offender treatment should not only consider positive effects of treatment, but also negative side effects for certain offender groups (Lowenkamp et al., 2006; J. A. Wilson & Davis, 2006). For instance, early and late dropout may occur for different reasons (Endres et al., 2016). Some reasons, such as insufficient cognitive capacity or language skills, that become apparent early in treatment may not be associated with recidivism and anyway may be remediable if identified. Other reasons, such as disruptive behaviour or no motivation to change, however, may be, especially if they are noticed late in treatment. Further research is needed to clarify the role of motivation, (self-)labelling and treatment termination in relation to rehabilitation processes.

4.3 | Practical implications

As expected, non-completion could not have been predicted by a few simple variables. In our regression model, we only could correctly classify 8% of all the men who discontinued treatment. The respective variables are important, but not sufficient to create an 'attrition profile' (Olver et al., 2011, p. 15). Therefore, it is important to take more treatment-oriented measures of risk and responsivity into account.

Even though we demonstrated a negative relationship between treatment discontinuance and recidivism, we do not recommend keeping all offenders in treatment at any cost. To maintain a positive therapeutic climate and to avoid wasting resources, it may be necessary to exclude people who do not benefit from treatment or disturb the therapeutic climate. It should be considered, though, that antisocial or rule-breaking behaviour is very prevalent among serious offenders and may not always be associated with enduring misconduct (Sung et al., 2001). Treatment termination should be considered as a last resort after having considered other possible measures and should be comprehensively discussed in close cooperation with the offender and staff, weighing pros and cons. In a small qualitative interview study on violent and sexual offenders, Németh-Csóka (2019) found that transparency and clear communication were important for dropouts to avoid feelings of frustration and demoralisation. Mutual discussions on treatment goals between the offenders and staff may prevent discontinuation of treatment or, at least, buffer negative consequences of treatment termination. If prisoners have made substantial progress in treatment, this should be included in future correctional planning, even if they did not complete the programme, to counteract negative effects of frustration or stigmatisation.

Re-transferring people who drop out of treatment programmes or therapeutic communities to an ordinary prison environment is also a relevant point of concern as most privileges granted in the STU cannot be maintained on ordinary location. We recommend avoiding a sweep from intensive to nearly zero treatment, but rather sustaining some of the therapeutic efforts made in the STU. Unfortunately, many prisons suffer from staff shortage and do not have resources to offer therapeutic interventions beyond counselling or low-intense group-based programmes. This is particularly problematic when it comes to release planning and reintegration (Carl & Lösel, 2021). Most dropouts are high-risk clients with a substantial need for support that cannot always be provided in ordinary prisons to the extent they need (Beyko & Wong, 2005). The interaction between dropout, release planning, and aftercare should be an important focus in future research.

Our results suggest that the total time spent in the STU alone had no influence on later recidivism. This underlines the importance of considering the participants' motivation and compliance in a long-term perspective. Motives to engage in treatment may change over time and should be assessed continuously. As intrinsic motivation is linked to better therapy outcomes, offenders should be encouraged to internalise aspects of extrinsic motivation (McMurran & Ward, 2004). In the past, specialised interventions such as Motivational Interviewing (MI; Miller & Rollnick, 2013) have shown promising results in offender populations. In 13 studies, MI improved retention in treatment, enhanced motivation to change and reduced later reoffending (McMurran, 2009).

Day et al. (2006) argue that treatment failure is most likely if interventions are not responsive to the offenders' particular needs at a particular time. Therefore, flexible interventions that can be tailored to individual needs and responsivity issues should be preferred over 'one size fits all' programmes. We found, for instance, that migration background was a relevant risk factor for attrition. Migration background may be an indicator of insufficient language skills but also of cultural differences that complicate the treatment process. In their meta-analysis, Usher and Stewart (2014) compared Canadian federal offenders to a group of ethnically diverse offenders and found no difference in recidivism rates, suggesting offenders from a wide variety of ethnic backgrounds can benefit from correctional programmes (see also S. J. Wilson et al., 2003). Although the migration situation in Germany differs from those in the United States, Canada and the United Kingdom, treating offenders from different cultural backgrounds and dealing with intercultural conflicts and language barriers is a serious challenge for correctional services in many countries. Adaptions in staff recruitment, training, and programme modules may be helpful and further research is needed (Lammy, 2017).

4.4 | Limitations and further directions

Our study has various strengths, including large sample size, detailed data on participants, sex offender treatment in routine practice (and not a demonstration project), and lengthy time at risk after leaving prison. We were able to analyse the relationship between treatment non-completion and recidivism in a multivariate model controlling for *a priori* differences and treatment duration, which has rarely been done before.

There were, however, some limitations too. One issue is the definition of the groups. It was not entirely clear whether those men who left treatment only for administrative reasons, such as their sentence coming to an end, really should be counted as 'treatment completers'. Also, one cannot be sure whether those who stayed a long time in treatment had effectively completed all relevant treatment elements way before their actual release. The same limitations apply to non-completion: we could not get detailed data on reasons for non-completion or the extent to which aspects of the treatment might have been regarded as complete despite removal from the therapeutic community. Future research should take these points into account. Lockwood and Harris (2013) and Sheldon et al. (2010) found, for instance, substantial differences in recidivism among young offenders depending on whether discontinuation was due to misbehaviour or request to stop. In routine practice, this differentiation is not always simple as treatment termination may be a consequence of different interacting factors, which can be partly individual and partly environmental. Continuous monitoring of treatment engagement is highly important for preventing dropout from interventions in general (Carl et al., 2020). Besides quantitative studies, ideally with a longitudinal focus, qualitative analysis could provide more insight in narratives and pathways from treatment participation to dropout and to recidivism.

The focus on dropout and recidivism substantially reduced our sample, therefore, some comparisons lacked statistical power and should be replicated (see Farrington et al., 2019; Lösel, 2018). Some analyses, such as comparing rates for violent or sexual recidivism in a multivariate model, had to be omitted due to very low recidivism rates and small sample sizes (for details on those recidivism rates see Lösel et al., 2020). As the late non-completer group consisted of only 18 individuals, replication with a larger sample is necessary. It should also be noted that our sample included offenders from seven treatment facilities in Bavaria that differed in target population, therapeutic measures or framing conditions (see Carl et al., 2019). As we focus on male sex offenders, a large proportion of whom had offended against children, the results may not be generalisable across gender, age, or other offender types. Future treatment research should make a better use of empirical typologies of sexual offenders instead of mainly focusing on index offences. This would require closer connections between the too much separated research on risk assessment and treatment (Lösel & Schmucker, 2017).

Our sample was exclusively of male offenders, and it is important to know whether women in such circumstances, all too rarely studied in this way, would have similar problems with treatment non-completion.

5 | CONCLUSIONS

Our study provides important information on the link between treatment duration, treatment dropout, and recidivism among imprisoned sex offenders. Our data suggest that higher recidivism among men discontinuing treatment is not related only to *a priori* differences or deficient treatment intensity but is also likely to have been influenced by treatment discontinuance *per se*. Further research should provide answers to the question how to buffer negative effects of premature treatment termination on offenders and society.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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