

This is the accepted manuscript before proof reading. The Version of Record of this manuscript has been published and is available in Neumann, M. & Bauer, L. (2022). The Influence of Unsupervised Short Leave on Treatment Progress in Forensic Psychiatric Hospitals: A Pre-Post Study with Follow-up. *International Journal of Forensic Mental Health*, 1-9.

<https://doi.org/10.1080/14999013.2022.2151670>.

The influence of unsupervised short leave on treatment progress in forensic psychiatric hospitals: A pre-post study with follow-up

Merten Neumann¹, Louisa Bauer²

1: Criminological Research Institute of Lower Saxony, Hanover, Germany

2: Clinic for Psychiatry and Psychotherapy-Forensic Psychiatry, University Medical Center
Göttingen, Göttingen, Germany

Corresponding author

Merten Neumann

Lützerodestraße 9

30161 Hannover

Germany

Phone: +49 511/34836-35

E-Mail: Merten.Neumann@kfn.de

ORCID: 0000-0003-2761-4152

Twitter: @merten_neumann

Others

Louisa Bauer

Rosdorfer Weg 70

37081 Göttingen

Germany

Phone: +49 151/11616597

E-Mail: louisa.bauer@med.uni-goettingen.de

ORCID: 0000-0003-1959-5035

Twitter: @BauerLouisa

Abstract

In Germany, short leave is an integral part of treatment in forensic psychiatric hospitals. It is believed that the practice has many benefits for the patients' wellbeing and their treatment progress. However, the risk of an incident in the form of absconding or new offenses may be especially heightened during unsupervised short leave. This study analyzes the impact of unsupervised short leave on treatment progress using a pre-post design with follow-up and a sample of 298 forensic psychiatric patients. Furthermore, incidents on short leave were considered in the analysis. The results of the study suggest that unsupervised short leave can foster treatment progress. However, they also reveal that incidents during leave can disrupt the progress of treatment.

Keywords: short leave, forensic psychiatry, absconding, offender treatment, treatment progress

Introduction

In Germany, individuals who have committed offenses can be admitted into forensic psychiatric hospitals, based on the German criminal code (“Strafgesetzbuch”). Patients admitted to a forensic psychiatric hospital must have committed an offense while suffering from a severe mental disorder (e.g., schizophrenia) or an extreme mental state (e.g., extreme emotional distress).

The placement in a forensic psychiatric hospital has no limitation regarding the length of confinement. Release prospects of patients are mainly determined by an assessment of the risk that they will reoffend (Edworthy et al., 2016; Müller-Isberner et al., 2000). The goal of the admission is to cure or improve the patient’s condition so that they are no longer at high risk of serious reoffending. Furthermore, the housing in forensic psychiatric hospitals is adapted to the general living conditions as much as possible in order to prepare the patient for an independent lifestyle.

To achieve these goals, various forms of treatment are used. Meta-analytic results by Gilling McIntosh et al. (2021) have shown that psychological and psychosocial interventions in forensic psychiatric hospitals are effective in increasing insight into mental illness, ameliorating symptoms, improving problem-solving abilities, reducing pro-criminal attitudes and improving ward behavior.

In contrast to such positive findings, there are also empirical findings that show that certain institutional conditions of forensic psychiatric hospitals have a negative impact on the success of treatment and the well-being of patients. Meta-analytic results by Parhar et al. (2008) indicate that involuntary, court mandated treatment of individuals who have offended seems to be ineffective in reducing recidivism. This was particularly evident when the treatment was in custodial settings.

A narrative literature review by Hachtel et al. (2019) further differentiated the results regarding the influence of coercion in the treatment of individuals who had offended. The

authors state that it is not legal coercion itself, but perceived coercion that compromises the therapy outcome. Perceived coercion is not necessarily a product of a court mandate, but of the conditions of the treatment setting (e.g., the relationship between patient and treatment provider), a feeling of a lack of respect and the experience of low autonomy (Hachtel et al., 2019). This is in line with the findings of Franke et al. (2019), who observed higher scores for depression, hostility and suicidal ideation in patients who perceived institutional coercion.

Besides the difficulties related to coercion, the incarceration leads the individual who offended to be isolated from the outside world. This isolation can initiate a process of disconnection from the community that may lead to a lack of meaningful opportunities to work, receive an education, and maintain social interactions (Walker et al., 2013). This could entail several serious consequences, such as patients losing the ability to manage their time effectively and failing to meet the challenges of successful community participation and re-entry (Farnworth et al., 2004; O'Connell et al., 2010; Sturidsson et al., 2007; Walker et al., 2013). This loss of autonomy was also described by Sykes (1974) as one of the "pains of imprisonment" (p. 63) and can be accompanied by low mental health (Goodstein et al., 1984).

Lastly, the isolated placement makes it difficult to practice therapeutic tasks in everyday life (Gratz, 1986), which should be crucial if the prerequisite for release is a favorable prognosis concerning the risk of recidivism. It has been proposed that these problems, which arise from placement in a closed institution over a long period of time, could at least be partially overcome with a process of graduated release and the opportunity of short leave (e.g. Müller, Saimeh, et al., 2017).

Short leave in German forensic psychiatric hospitals

In Germany, periods of short leave (also called temporary absence) present an opportunity for detained individuals who have offended to leave the correctional facility under certain circumstances for a predetermined period of time (Köhne & Lesting, 2012). The

possibility of short leave for individuals who have offended in the prison system as well as in forensic psychiatric hospitals is legally consolidated in the German prison act (“Strafvollzugsgesetz”) (Grünebaum & Volckart, 2015; Köhne & Lesting, 2012). Especially within the system of forensic psychiatric hospitals, the method of short leave is an integral part of both the treatment process and the gradual release process (Müller, Saimeh, et al., 2017; Pollähne, 2018).

Different types of short leave are scaled in a step-by-step plan by the institutions according to the amount of freedom granted (e.g., from going out with two staff members for a short period of time to long-term leave outside the facility; Müller, Nedopil, et al., 2017). Patients usually complete all steps (sometimes steps can be skipped or altered depending on the patient’s progress and needs) before their release. The completion of a previous stage without any incident (e.g., absconding, new offenses) is a prerequisite for progressing to the next step of the plan. One important step in this process is the unsupervised short leave. Here, the patient is allowed to leave the institution without a staff member.

The potential benefits of short leave for the treatment of individuals who have offended

Theoretical concepts about therapy for individuals who have offended, such as the multifactor offender readiness model (MORM) by Ward et al. (2004), suggest that factors related to the setting of the treatment influence a patient’s readiness for treatment and thus the success of the treatment. The MORM model proposes that treatment readiness is a function of external (context) factors and internal (person) factors. The contextual factors refer primarily to the context conditions of how the treatment is offered. The location (prison vs. community treatment), circumstances (mandated vs. voluntary), and program characteristics (program type) are some examples of contextual factors. The internal factors refer to an individual’s cognitive (e.g., viewing the condition as serious and offending as a problem), emotional (e.g., experiencing distress), volitional (e.g., motivation to change), and behavioral properties (e.g.,

possessing basic communication and social skills). A favorable interaction of internal and external factors increases the readiness of a person, leading to high program engagement and performance. Theoretical assumptions suggest that short leave can positively influence the internal readiness of a patient. The prospect of short leave may help to increase motivation to participate in therapy (Müller, Nedopil, et al., 2017; Suhling et al., 2015). Furthermore, it is assumed that short leave can improve autonomy, which has a positive influence on patients' well-being and quality of life (Goodstein et al., 1984; Watson & Choo, 2020).

The potential risks of short leave

Despite the potential benefits, there is also the risk of an incident on short leave (ISL). Such incidents can be of a diverse nature as they are often broadly defined as types of behavior that might disrupt the treatment progress (Neumann et al., 2019). This can include the use of addictive substances as well as absconding and new offenses during short leave. Offenses committed by forensic psychiatric patients during leave can pose a serious threat to the community (Hilterman et al., 2011), even though these events rarely occur (e.g. Watson & Choo, 2020; Wilkie et al., 2014). It is also suspected that incidents on short leave negatively affect the patient. Wilkie et al. (2014) describe absconding during short leave as corrosive for treatment, slowing down the progress. Watson and Choo (2020) raise concerns about potential health and safety risks for patients who abscond.

The present study

Despite the risk of incidents, short leave from forensic psychiatric hospitals can be seen as an important tool for evaluating the treatment progress outside of the institution. Furthermore, short leave may present an opportunity to encourage the patient's rehabilitation and motivate them to engage in further treatment (Walker et al., 2013; Wedler & Maaß, 2016). However, the extent to which these advantages apply to short leave has not yet been sufficiently investigated. Therefore, the aim of the present study is to examine how the

treatment progresses after short leave is granted and how an ISL influences the treatment progress. The first hypothesis is that short leave has a positive influence on treatment progress, meaning that after permission is given for short leave, indicators of treatment progress are rated as better than they were prior to the permission of short leave. The second hypothesis is that incidents during short leave disrupt the treatment progress, meaning that the ratings of indicators of treatment progress worsen after an incident during short leave.

Method

Sample and setting

The present study uses data from a research project conducted by the Criminological Research Institute of Lower Saxony. All data used in this study was originally collected and stored by the forensic mental health institutions in the context of their day-to-day risk assessment procedures. Thus, no informed consent of individual patients could be obtained. The possibility of releasing this data for scientific purposes was examined and approved by the Ministry of Social Affairs of Lower Saxony, considering the data protection approach of the research project. The aim of the research project was to evaluate the institutional process regarding short leave in all ten forensic mental health institutions in Lower Saxony, a federal state in northern Germany (Neumann et al., 2019; funded by the Ministry of Social Affairs of Lower Saxony). Data were gathered from all forensic-psychiatric patients who had undergone an external risk assessment in relation to their application for unsupervised short leave between 2006 and 2016 ($N = 431$). The 346 patients for whom short leave was granted make up our study sample. Once they received permission, patients could take unsupervised short leave within a pre-determined limit (e.g., one hour twice per week). Unfortunately, the extent to which they made use of this possibility is unknown. We can only be sure that the patients used their opportunity to leave the institution unsupervised at some point in time and that all incidents that are referred to in this study happened during leave.

For the risk assessment, the patients' main therapists completed a questionnaire devised by the forensic mental health institutions in Lower Saxony. The questionnaire contained demographic variables as well as static and dynamic risk and protective factors, including questions about the treatment progress (no validated instruments are included; the complete questionnaire can be found in Neumann et al., 2019). This questionnaire was then given to external clinicians (three people from different clinics) together with the patient's file for an external expert assessment regarding the question of unsupervised short leave. When a patient was granted unsupervised short leave from the institution, the questionnaire regarding treatment progress was distributed again after each of two consecutive six-month intervals. Furthermore, at both points of measurement (six and twelve months after granted leave), any rule breaking behavior that occurred during short leave was recorded. Thus, the data set includes three points of measurement regarding indicators of treatment progress: t_0 = before permission for short leave (pretest), t_1 = six months after permission for short leave (posttest), t_2 = twelve months after permission for short leave (follow-up). The data set also includes two points of measurement for incidents on short leave (t_1 , t_2).

Of the 346 patients in our sample, 48 were removed because data regarding the treatment progress or incidents on short leave was missing. For nine of these, the necessary timeframe of one year since the risk assessment had not been reached at the time of data collection. For the remaining 39 patients it is unclear why some of the data is missing. Possible causes include oversights by the clinic staff, transfer to a different federal state, total revocation of any leave privileges, or death of the patient. In conclusion, the final data set for the analyses contained data from 298 patients.

The patients in the final sample ranged in age from 19 to 79 years ($M = 39.69$; $SD = 11.80$) and most of them were male (87.6%). The most common types of diagnoses were substance use disorders (F1X.XX; 55.7%), schizophrenic disorders (F2X.XX; 37.9%)

and combined personality disorders (F61; 18.1%). Common offenses were violent offences (e.g., assault, robbery; 47.0%), sexual offenses (35.6%) and homicide (29.5%).

Measures

Dependent variable

The aim of this study is to analyze the progress of treatment in forensic psychiatric hospitals after patients have been granted approval for unsupervised short leave. We define treatment progress as a positive change in the patient within the framework of therapy. This includes positive change in treatment readiness and engagement (e.g., Drieschner & Verschuur, 2010). The questionnaire that the main therapists completed at each time of measurement includes several potential indicators of treatment progress. All of these were rated on a 5-point scale (very low – very high). The most obvious item asked for the “*progress of the treatment since the start of the confinement*” (*Progress*). To strengthen the reliability of our measurement, we chose to include additional indicators available from the questionnaire. Two of these items can be classified as factors indicating treatment engagement and two concern internal factors for treatment readiness (Ward et al., 2004). The item *Contact* (“*Contact with the patient in daily therapeutic practice*”) is meant to measure the relationship between the patient and the clinical personnel. Thus, it is closely related to the concepts of therapeutic/working alliance (e.g., Bordin, 1979) and treatment engagement (Ward et al., 2004). The item *Cooperation* (“*Actual cooperation in treatment and day-to-day correctional routines*”) incorporates factors such as attendance and participation during treatment; thus, it is also related to treatment engagement (e.g., Drieschner & Boomsma, 2008; Ward et al., 2004). The item *Motivation* (“*Motivation regarding treatment*”) measures the patient’s motivation to participate in therapy and accept the treatment. Therefore, it can be linked to the volitional factors for internal treatment readiness specified by Ward et al. (2004). The item

Insight (“*Insight into one’s illness*”) concerns the understanding and acceptance of the patient regarding the diagnoses being addressed in therapy. It can therefore be seen as a cognitive factor for treatment readiness (Ward et al., 2004). The psychometric performance of these chosen indicators (1. *Progress*; 2. *Contact*; 3. *Cooperation*; 4. *Motivation*; 5. *Insight*) was tested before the main analysis was conducted (see Table 1 for a correlation matrix). First, we used a confirmatory factor analysis (robust DWLS estimator using the R-package *lavaan*; Rosseel, 2012; version 0.6-12) to test the unidimensionality assumption across all three points of measurement (including longitudinal measurement invariance regarding the measurement model and factor loadings; see Brown, 2015; Kline, 2011). The resulting fit indices support a one-factor model (*RMSEA*: .063; *SRMR*: .054; *CFI*: .985; *TLI*: .981; see Hu & Bentler, 1999), fit for interpretation regarding multiple times of measurement (differences to model with no restrictions on factor loadings: Δdf : 8; $\Delta RMSEA$: -.003; $\Delta SRMR$: .008; ΔCFI : .000; ΔTLI : .002; see Chen, 2007). The internal consistency of the scale was investigated with *Revelle’s ω* based on polychoric correlations using the package *psych* (Revelle, 2017) because the assumptions of tau-equivalence and continuous items (e.g., McNeish, 2018) for *Cronbach’s α* were not met (see Table 2). The scale shows good internal consistency for all three points of measurement ($\omega_{t0} = .91$; $\omega_{t1} = .93$; $\omega_{t2} = .92$). In conclusion, we defined the *Scale of Treatment Progress* as the mean of the variables *Progress*, *Contact*, *Cooperation*, *Motivation*, and *Insight*. We then used it as the dependent variable in our analyses.

###Insert tables 1 and 2 here###

Independent variable

In addition to the analysis of the change of the Scale of Treatment Progress over time, the influence of an ISL on treatment progress was investigated. As previously stated, ISLs had been recorded at t_1 and t_2 for the preceding six months. The main therapists were asked if any of the following types of behavior had occurred during short leave: 1. *Violation of*

communication requirements (e.g., not answering the phone), 2. *Exceeding the specified time frame* (e.g., late return), 3. *Leaving the previously defined area* (e.g., leaving the city for which the leave was granted), 4. *Violation of situational or personal contact prohibitions* (e.g., seeking contact with former victim), 5. *Unauthorized use of media* (e.g., procurement of a smartphone without permission), 6. *Use of psychotropic substances* (e.g., drinking alcohol), 7. *Miscellaneous* (e.g., new offenses, gambling). For this study, we formed binary variables for ISL at t_1 and t_2 for descriptive analyses as well as a categorical variable with the levels *No incidents* (no ISL was recorded), *0-6 months* (at least one type of ISL was recorded at t_1), *7-12 months* (at least one type of ISL was recorded at t_2), and *Both* (at least one type of ISL was recorded at t_1 and t_2) to study the impact on the Scale of Treatment Progress.

Statistical Analysis

The statistics software R (R Core Team, 2021) was used for all analyses and figures (Wickham, 2016).

Following an ISL, it is possible that the patients' short leave privileges were paused or completely revoked. Unfortunately, we are unable to identify these groups exactly. We can only verify that all patients in our sample used their permission for short leave at some point during both time frames (0-6 months and 7-12 months after the permission was granted). However, for 51 patients in our sample, permission for unsupervised short leave was paused or privileges were reduced during the observation period. As it is unclear whether these pauses were of any meaningful length, we chose to include the patients in question in our analysis.

The study uses a pre-post design with follow-up and no control group. The main analysis was conducted using a repeated measures ANOVA and post-hoc *t*-tests with the time of measurement as a within-subjects factor and the categorical ISL variable as a between-subjects factor. The following assumptions for the repeated measures ANOVA were tested: 1.

The non-existence of extreme outliers, 2. The assumption of normality in all conditions, 3. Sphericity. Extreme outliers were defined as values greater than the 75%-quantile + 3*IQR or smaller than the 25%-quantile – 3*IQR within each condition (Kassambara, 2021). Two extreme outliers were identified and excluded from the main analysis (still included in descriptive results). Normality within each condition was assessed using a series of QQ-plots. In some conditions, the distribution of the dependent variable appears to be somewhat left-skewed, but no major violations of the assumption of normality could be identified. The sphericity was tested using Mauchly's W (Mauchly, 1940). The test suggests that heteroskedasticity is indeed a problem ($W = .96; p < .01$). To correct the degrees of freedom accordingly, the Huynh-Feldt correction (Huynh & Feldt, 1976; Lecoutre, 1991) was used, as the ϵ was $> .75$ (.96).

Results

Descriptive Statistics

Table 3 shows descriptive statistics regarding the change of the Scale of Treatment Progress over the course of the three measurements. Table 4 shows the frequency of the different types of ISL within the sample.

###Insert tables 3 and 4 here###

Eighteen (6%) patients were only involved in an ISL in the first six months after their permission to leave the institution unsupervised was granted. Twenty-six (9%) patients were only linked to an ISL between 7 and 12 months after their permission was granted. Fourteen (5%) patients were involved in an ISL in both timeframes.

Repeated measures ANOVA

Table 5 displays the results of the repeated measures ANOVAs. The analysis reveals a significant main effect of ISL. Furthermore, a significant interaction effect between the time

of measurement and ISL can be observed. A subsequent analysis comparing the different times of measurement within the groups of ISL using post-hoc *t*-tests provides a more detailed picture (see Figure 1). For the patients with no ISL, there is a significant increase in the Scale of Treatment Progress between t_0 and t_1 ($t = -2.66$; $p < .05$; $d = 0.11$) and between t_0 and t_2 ($t = -3.25$; $p < .01$; $d = 0.14$). In contrast, patients with an ISL within both timeframes showed a significant decrease in the Scale of Treatment Progress between t_0 and t_1 ($t = 3.41$; $p < .05$; $d = 0.57$).

###Insert table 5 and figure 1 here###

Discussion

The aim of this study was to investigate how treatment within forensic hospitals advances after unsupervised short leave is granted. To that end, we investigated the change of treatment progress as assessed by patients' main therapists in a pre-post design with follow-up. We also analyzed the impact of incidents during short leave on the therapists' ratings.

To interpret the results of this study, some key aspects should be kept in mind. First, no control group was included in the study. Thus, one cannot be entirely sure that pre-post differences in the Scale of Treatment Progress are an effect of short leave rather than just a general effect of treatment progression over time. Second, the dependent variable (Scale of Treatment Progress) solely relies on the main therapists' ratings which are given on an unvalidated questionnaire. Therefore, it is unclear to what extent these ratings represent conformity to the therapists' beliefs or their expectations of their patients rather than the true characteristics of the patients. Third, not all missing values in the data set can be accounted for. It cannot be ruled out that some patients were not included in the analysis because their permission for short leave was completely revoked due to a serious incident during leave. It follows that these results should be seen as a first step in this area of research and should be followed with prospective research using more rigorous methods.

Despite these limitations, the results of this study provide valuable first insights into the influence of short leave programs on the advancement of treatment for individuals who have offended as well as the impact of incidents during short leave. The results of the repeated measures ANOVA with post-hoc tests show a positive effect of unsupervised short leave on the Scale of Treatment Progress for patients who did not have an ISL. Furthermore, the level of the Scale of Treatment Progress seems to remain stable between posttest and follow-up.

The association between unsupervised short leave and the Scale of Treatment Progress shows an interaction with the occurrence of an ISL within our sample. The exact nature of this interaction, however, is hard to pin down. There are indications that an ISL leads to a decrease in the Scale of Treatment Progress within the same timeframe, but this working hypothesis does not adequately fit the results. A significant reduction regarding the Scale of Treatment Progress can only be observed in the group of patients with an ISL in both time frames. The groups of patients with an ISL in only one time frame did show reductions in the corresponding time frames, but these did not prove to be statistically significant. The problem might be that the groups of patients with an ISL are relatively small due to the low overall prevalence rate (19.5%) and the differentiation into the two time intervals. Future research should include larger samples of patients with an ISL to examine the interaction with the treatment progress in more detail. However, it is noteworthy that the negative impact of an ISL within the first six months was strongest in the group of patients who also had an ISL within the second time frame. This raises the question of whether a strong decrease in treatment progress has any prognostic value for future ISLs.

The results of this study support the conclusion that providing freedoms to patients in forensic psychiatric institutions can support treatment progress. However, they also reveal that ISLs can halt or even reduce treatment progress. It is unclear whether this effect is due to a behavioral change in the patients or the therapists' assessments becoming worse because they

are disappointed in their patients. In both cases, it is evident that the consequences of an ISL should be avoided.

Directions for future research

As previously stated, this study can only be seen as a first glance into the analysis of the association between short leave and the treatment of individuals who have offended. Future research should ideally employ a prospective longitudinal design with validated measures of treatment progress (e.g., Instrument for Forensic Treatment Evaluation [IFTE]; Schuringa et al., 2014; Treatment Engagement Rating Scale [TER]; Drieschner & Boomsma, 2008; Forensic Camberwell Assessment of Need [CANFOR]; Thomas et al., 2008; for an overview see Ryland et al., 2021). Furthermore, to be able to improve risk management strategies in forensic psychiatric institutions, a more detailed analysis of the field is required in future research. First, it would be advantageous to differentiate between different kinds of ISLs. The term includes a wide variety of behaviors that differ substantially in severity (Neumann et al., 2019). For example, a lapse during addiction treatment might impact the patient's treatment progress and relationship with their therapist differently than a new and serious offense would. Due to the low prevalence of ISLs, this kind of differentiation would require greater sample sizes as well. Second, research should address the following question: To what extent can declines in treatment progress after an ISL be attributed to the patients and how much of the decline can be attributed to the reactions of the therapists and institutions? To do so, researchers should also include the consequences that patients face because of an ISL in more detail in future analyses. It could be that a stronger disruption of treatment progress is merely associated with a harsher reaction from the clinic. In addition, future research endeavors should consider different types of leave options (e.g., supervised) and the actual amount of short leave taken by patients rather than the general permission to do so.

Acknowledgements

We thank Klaus-Peter Dahle and Thomas Bliesener for their valuable support and feedback.

Conflict of Interest

The authors declare that they have no conflict of interest.

Funding

The research was funded by the Ministry of Social Affairs of Lower Saxony.

References

- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research & Practice*, 16(3), 252–260.
<https://doi.org/10.1037/h0085885>
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2. ed.). *Methodology In The Social Sciences*. Guilford Press.
<http://site.ebrary.com/lib/alltitles/detail.action?docID=11001916>
- Chen, F. F. (2007). Sensitivity of Goodness of Fit Indexes to Lack of Measurement Invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 14(3), 464–504. <https://doi.org/10.1080/10705510701301834>
- Drieschner, K. H., & Boomsma, A. (2008). The Treatment Engagement Rating scale (TER) for forensic outpatient treatment: Description, psychometric properties, and norms. *Psychology, Crime & Law*, 14(4), 299–315.
<https://doi.org/10.1080/10683160701858206>
- Drieschner, K. H., & Verschuur, J. (2010). Treatment engagement as a predictor of premature treatment termination and treatment outcome in a correctional outpatient sample. *Criminal Behaviour and Mental Health*, 20(2), 86–99.
<https://doi.org/10.1002/cbm.757>
- Edworthy, R., Sampson, S., & Völlm, B. (2016). Inpatient forensic-psychiatric care: Legal frameworks and service provision in three European countries. *International Journal of Law and Psychiatry*, 47, 18–27. <https://doi.org/10.1016/j.ijlp.2016.02.027>
- Farnworth, L., Nikitin, L., & Fossey, E. (2004). Being in a Secure Forensic Psychiatric Unit: Every Day is the Same, Killing Time or Making the Most of It. *British Journal of Occupational Therapy*, 67(10), 430–438.
<https://doi.org/10.1177/030802260406701003>
- Franke, I., Büsselmann, M., Streb, J., & Dudeck, M. (2019). Perceived Institutional Restraint Is Associated With Psychological Distress in Forensic Psychiatric Inpatients. *Frontiers in Psychiatry*, 10, 410. <https://doi.org/10.3389/fpsy.2019.00410>
- Gilling McIntosh, L., Janes, S., O'Rourke, S., & Thomson, L. D. (2021). Effectiveness of psychological and psychosocial interventions for forensic mental health inpatients: A meta-analysis. *Aggression and Violent Behavior*, 58, 101551.
<https://doi.org/10.1016/j.avb.2021.101551>
- Goodstein, L., MacKenzie, D. L., & Shotland, R. L. (1984). Personal Control and Inmate Adjustment to Prison. *Criminology; an Interdisciplinary Journal*, 22(3), 343–369.
<https://doi.org/10.1111/j.1745-9125.1984.tb00304.x>
- Gratz, W. (1986). *Die Praxis der Unterbringung zurechnungsfähiger geistig abnormer Rechtsbrecher. Schriften zum Strafrecht: Vol. 3*. Orac.
- Grünebaum, R., & Volckart, B. (2015). *Maßregelvollzug: Das Recht des Vollzuges der Unterbringung nach §§ 63, 64 StGB in einem psychiatrischen Krankenhaus und in einer Erziehungsanstalt* (8. Aufl.). Heymanns.
- Hachtel, H., Vogel, T., & Huber, C. G. (2019). Mandated Treatment and Its Impact on Therapeutic Process and Outcome Factors. *Frontiers in Psychiatry*, 10, 219.
<https://doi.org/10.3389/fpsy.2019.00219>
- Hilterman, E. L. B., Philipse, M. W. G., & Graaf, N. D. de (2011). Assessment of Offending During Leave: Development of the Leave Risk Assessment in a Sample of Dutch

- Forensic Psychiatric Patients. *International Journal of Forensic Mental Health*, 10(3), 233–243. <https://doi.org/10.1080/14999013.2011.598601>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Huynh, H., & Feldt, L. S. (1976). Estimation of the Box Correction for Degrees of Freedom from Sample Data in Randomized Block and Split-Plot Designs. *Journal of Educational Statistics*, 1(1), 69–82. <https://doi.org/10.3102/10769986001001069>
- Kassambara, A. (2021). *rstatix* (Version 0.7.0) [Computer software]. <https://CRAN.R-project.org/package=rstatix>
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3. ed.). *Research methods*. Guilford Press.
- Köhne, M., & Lesting, W. (2012). § 11: Lockerungen des Vollzuges. In J. Feest & W. Lesting (Eds.), *StVollzG: Kommentar zum Strafvollzugsgesetz ; (AK-StVollzG)* (6th ed., pp. 102–125). Heymann.
- Lecoutre, B. (1991). A Correction for the $\tilde{\epsilon}$ Approximate Test in Repeated Measures Designs With Two or More Independent Groups. *Journal of Educational Statistics*, 16(4), 371–372. <https://doi.org/10.3102/10769986016004371>
- Mauchly, J. W. (1940). Significance test for sphericity of a normal n-variate distribution. *The Annals of Mathematical Statistics*, 11(2), 204–209. <https://doi.org/10.1214/aoms/1177731915>
- McNeish, D. (2018). Thanks coefficient alpha, we'll take it from here. *Psychological Methods*, 23(3), 412–433. <https://doi.org/10.1037/met0000144>
- Müller, J. L., Nedopil, N., Freisleder, F. J., Graf, M., & Haller, R. (2017). *Forensische Psychiatrie: Klinik, Begutachtung und Behandlung zwischen Psychiatrie und Recht* (5., überarbeitete Auflage). Georg Thieme Verlag.
- Müller, J. L., Saimeh, N., Briken, P., Eucker, S., Hoffmann, K., Koller, M., Wolf, T., Dudeck, M., Hartl, C., Jakovljevic, A.-K., Klein, V., Knecht, G., Müller-Isberner, R., Muysers, J., Schiltz, K., Seifert, D., Simon, A., Steinböck, H., Stuckmann, W., . . . Zeidler, R. (2017). Standards für die Behandlung im Maßregelvollzug nach §§ 63 und 64 StGB: Interdisziplinäre Task-Force der DGPPN [Standards for treatment in forensic committment according to § 63 and § 64 of the German criminal code : Interdisciplinary task force of the DGPPN]. *Der Nervenarzt*, 88, 1–29. <https://doi.org/10.1007/s00115-017-0382-3>
- Müller-Isberner, R., Freese, R., Jöckel, D., & Cabeza, S. G. (2000). Forensic Psychiatric Assessment and Treatment in Germany. *International Journal of Law and Psychiatry*, 23(5-6), 467–480. [https://doi.org/10.1016/S0160-2527\(00\)00056-X](https://doi.org/10.1016/S0160-2527(00)00056-X)
- Neumann, M., Heintzsch, R., Glaubitz, C., Killig, L., Schumann, R., & Bliesener, T. (2019). *Analyse der Vollzugslockerungen im niedersächsischen Maßregelvollzug* (KFN-Forschungsbericht No. 150). Hannover. Kriminologisches Forschungsinstitut Niedersachsen e.V. (KFN).
- O'Connell, M., Farnworth, L., & Hanson, E. C. (2010). Time Use in Forensic Psychiatry: A Naturalistic Inquiry into Two Forensic Patients in Australia. *International Journal of Forensic Mental Health*, 9(2), 101–109. <https://doi.org/10.1080/14999013.2010.499558>
- Parhar, K. K., Wormith, J. S., Derksen, D. M., & Beauregard, A. M. (2008). Offender Coercion in Treatment. *Criminal Justice and Behavior*, 35(9), 1109–1135. <https://doi.org/10.1177/0093854808320169>

- Pollähne, H. (2018). Das Maß des Freiheitsentzugs (Vollzugslockerungen). In H. Pollähne & H. Kammeier (Eds.), *Maßregelvollzugsrecht* (4th ed., pp. 229–306). De Gruyter.
- R Core Team. (2021). *R: A language and environment for statistical computing* (Version 4.1.2) [Computer software]. R Foundation for Statistical Computing. Vienna, Austria. <https://www.R-project.org/>
- Revelle, W. R. (2017). Psych: Procedures for Personality and Psychological Research. <https://www.scholars.northwestern.edu/en/publications/psych-procedures-for-personality-and-psychological-research>
- Rosseel, Y. (2012). lavaan : An R Package for Structural Equation Modeling. *Journal of Statistical Software*, 48(2). <https://doi.org/10.18637/jss.v048.i02>
- Ryland, H., Cook, J., Yukhnenko, D., Fitzpatrick, R., & Fazel, S. (2021). Outcome Measures in Forensic Mental Health Services: A Systematic Review of Instruments and Qualitative Evidence Synthesis. *European Psychiatry : The Journal of the Association of European Psychiatrists*, 64(1), 1–40. <https://doi.org/10.1192/j.eurpsy.2021.32>
- Schuringa, E., Spreen, M., & Bogaerts, S. (2014). Inter-Rater and Test-Retest Reliability, Internal Consistency, and Factorial Structure of the Instrument for Forensic Treatment Evaluation. *Journal of Forensic Psychology Practice*, 14(2), 127–144. <https://doi.org/10.1080/15228932.2014.897536>
- Sturidsson, K., Turtell, I., Tengström, A., Lekander, M., & Levander, M. (2007). Time Use in Forensic Psychiatry: An Exploratory Study of Patients' Time Use at a Swedish Forensic Psychiatric Clinic. *International Journal of Forensic Mental Health*, 6(1), 79–86. <https://doi.org/10.1080/14999013.2007.10471251>
- Suhling, S., Pucks, M., & Bielenberg, G. (2015). Ansätze zum Umgang mit Gefangenen mit geringer Veränderungs- und Behandlungsmotivation. In B. Wischka, W. Pecher, & H. van den Boogaart (Eds.), *Studien und Materialien zum Straf- und Massregelvollzug: v.26. Behandlung von Straftätern: Sozialtherapie, Maßregelvollzug, Sicherungsverwahrung* (pp. 233–293). Centaurus Verlag & Media.
- Sykes, G. M. (1974). *The society of captives: A study of a maximum security prison* (Third paperback print). Princeton Univ. Press.
- Thomas, S. D. M., Slade, M., McCrone, P., Harty, M.-A., Parrott, J., Thornicroft, G., & Leese, M. (2008). The reliability and validity of the forensic Camberwell Assessment of Need (CANFOR): A needs assessment for forensic mental health service users. *International Journal of Methods in Psychiatric Research*, 17(2), 111–120. <https://doi.org/10.1002/mpr.235>
- Walker, A., Farnworth, L., & Lapinski, S. (2013). A recovery perspective on community day leaves. *The Journal of Forensic Practice*, 15(2), 109–118. <https://doi.org/10.1108/14636641311322296>
- Ward, T., Day, A., Howells, K., & Birgden, A. (2004). The multifactor offender readiness model. *Aggression and Violent Behavior*, 9(6), 645–673. <https://doi.org/10.1016/j.avb.2003.08.001>
- Watson, T. M., & Choo, L. (2020). Understanding and reducing unauthorized leaves of absence from forensic mental health settings: a literature review. *Journal of Forensic Psychiatry & Psychology*, 1–17. <https://doi.org/10.1080/14789949.2020.1837917>
- Wedler, K., & Maaß, C. (2016). Lockerungsentscheidungen im Erwachsenen-Maßregelvollzug. In F. Häßler, W. Kinze, & N. Nedopil (Eds.), *Praxishandbuch Forensische Psychiatrie: Grundlagen, Begutachtung, Interventionen im Erwachsenen-, Jugendlichen- und Kindesalter* (2nd ed., pp. 539–550). MWV.

Wickham, H. (2016). *Ggplot2: Elegant graphics for data analysis* (Second edition). *Use R!* Springer. <https://doi.org/10.1007/978-3-319-24277-4>

Wilkie, T., Penney, S. R., Fernane, S., & Simpson, A. I. F. (2014). Characteristics and motivations of absconders from forensic mental health services: A case-control study. *BMC Psychiatry*, *14*, 91. <https://doi.org/10.1186/1471-244X-14-91>

Table1. Correlation matrix for the indicators of the Scale of Treatment Progress using Pearson correlation coefficients.

| | | t₀ | | | | | t₁ | | | | | t₂ | | | | |
|----------------------|-------------|----------------------|-----|-----|-----|-----|----------------------|-----|-----|-----|-----|----------------------|-----|-----|-----|----|
| | | #1 | #2 | #3 | #4 | #5 | #1 | #2 | #3 | #4 | #5 | #1 | #2 | #3 | #4 | #5 |
| t₀ | | | | | | | | | | | | | | | | |
| #1 | Progress | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| #2 | Contact | .36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| #3 | Cooperation | .50 | .49 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| #4 | Motivation | .45 | .55 | .69 | - | - | - | - | - | - | - | - | - | - | - | - |
| #5 | Insight | .49 | .31 | .53 | .60 | - | - | - | - | - | - | - | - | - | - | - |
| t₁ | | | | | | | | | | | | | | | | |
| #1 | Progress | .48 | .28 | .40 | .37 | .36 | - | - | - | - | - | - | - | - | - | - |
| #2 | Contact | .16 | .37 | .29 | .28 | .15 | .45 | - | - | - | - | - | - | - | - | - |
| #3 | Cooperation | .26 | .26 | .44 | .39 | .25 | .60 | .57 | - | - | - | - | - | - | - | - |
| #4 | Motivation | .25 | .28 | .46 | .50 | .37 | .60 | .56 | .70 | - | - | - | - | - | - | - |
| #5 | Insight | .34 | .29 | .42 | .44 | .54 | .57 | .36 | .54 | .67 | - | - | - | - | - | - |
| t₂ | | | | | | | | | | | | | | | | |
| #1 | Progress | .42 | .18 | .29 | .26 | .22 | .59 | .32 | .47 | .40 | .36 | - | - | - | - | - |
| #2 | Contact | .07 | .21 | .23 | .18 | .15 | .19 | .48 | .27 | .27 | .22 | .38 | - | - | - | - |
| #3 | Cooperation | .22 | .21 | .44 | .40 | .32 | .38 | .35 | .58 | .45 | .41 | .59 | .51 | - | - | - |
| #4 | Motivation | .23 | .23 | .43 | .47 | .36 | .39 | .39 | .48 | .56 | .50 | .57 | .50 | .71 | - | - |
| #5 | Insight | .33 | .27 | .39 | .44 | .52 | .41 | .28 | .40 | .50 | .68 | .47 | .33 | .50 | .68 | - |

Table 2. Factor loadings of the indicators of the Scale of Treatment Progress within a one-factor model with invariant loadings for all points of measurement.

| | | Factor loadings | | | |
|----|-------------|-----------------|----------------|----------------|----------------|
| | | Unstandardized | Standardized | | |
| | | | t ₀ | t ₁ | t ₂ |
| #1 | Progress | 1.00 | .70 | .74 | .72 |
| #2 | Contact | 0.84 | .59 | .62 | .61 |
| #3 | Cooperation | 1.19 | .83 | .88 | .86 |
| #4 | Motivation | 1.28 | .89 | .94 | .92 |
| #5 | Insight | 1.06 | .74 | .78 | .77 |

Table 3. Descriptive statistics of the Scale of Treatment Progress categorized by the legal basis of confinement and the time of measurement.

| | <i>M</i> | <i>Med</i> | <i>SD</i> | <i>Range</i> |
|----------------------|----------|------------|-----------|--------------|
| t₀ | 3.32 | 3.40 | 0.71 | 1.40-5.00 |
| t₁ | 3.40 | 3.40 | 0.73 | 1.40-5.00 |
| t₂ | 3.44 | 3.40 | 0.70 | 1.40-5.00 |

Table 4. Number of patients with an ISL subdivided by the type of ISL and the timeframe after the short leave was granted ($N = 298$).

| | | 0-6 months | 7-12 months | Any time |
|----|---|---------------|----------------|---------------|
| #1 | Violation of communication requirements | 9 (3.0%) | 10 (3.4%) | 16 (5.4%) |
| #2 | Exceeding the specified time frame | 13 (4.4%) | 11 (3.7%) | 17 (5.7%) |
| #3 | Leaving the previously defined area | 9 (3.0%) | 11 (3.7%) | 14 (4.7%) |
| #4 | Violation of situational or personal contact prohibitions | 4 (1.3%) | 3 (1.0 %) | 5 (1.7%) |
| #5 | Unauthorized use of media | 6 (2.0%) | 7 (2.3%) | 12 (4.0%) |
| #6 | Use of psychotropic substances | 14 (4.7%) | 19 (6.4%) | 26 (8.7%) |
| #7 | New offences | 0 (0.0%) | 1 (0.3%) | 1 (0.3%) |
| | Any type | 32 (10.7%) | 40 (13.4%) | 58 (19.5%) |

Table 5. Repeated-measures ANOVA with the time of measurement as a within subject factor and ISL as a between subject factor.

| | df_n | df_d | F | p | η^2 |
|-------------------------|--------|--------|------|-------|----------|
| ISL | 3.00 | 294.00 | 5.59 | <.001 | .039 |
| Time of measurement | 1.94 | 569.27 | 1.22 | .29 | .001 |
| ISL*Time of measurement | 5.81 | 569.27 | 3.48 | <.01 | .010 |

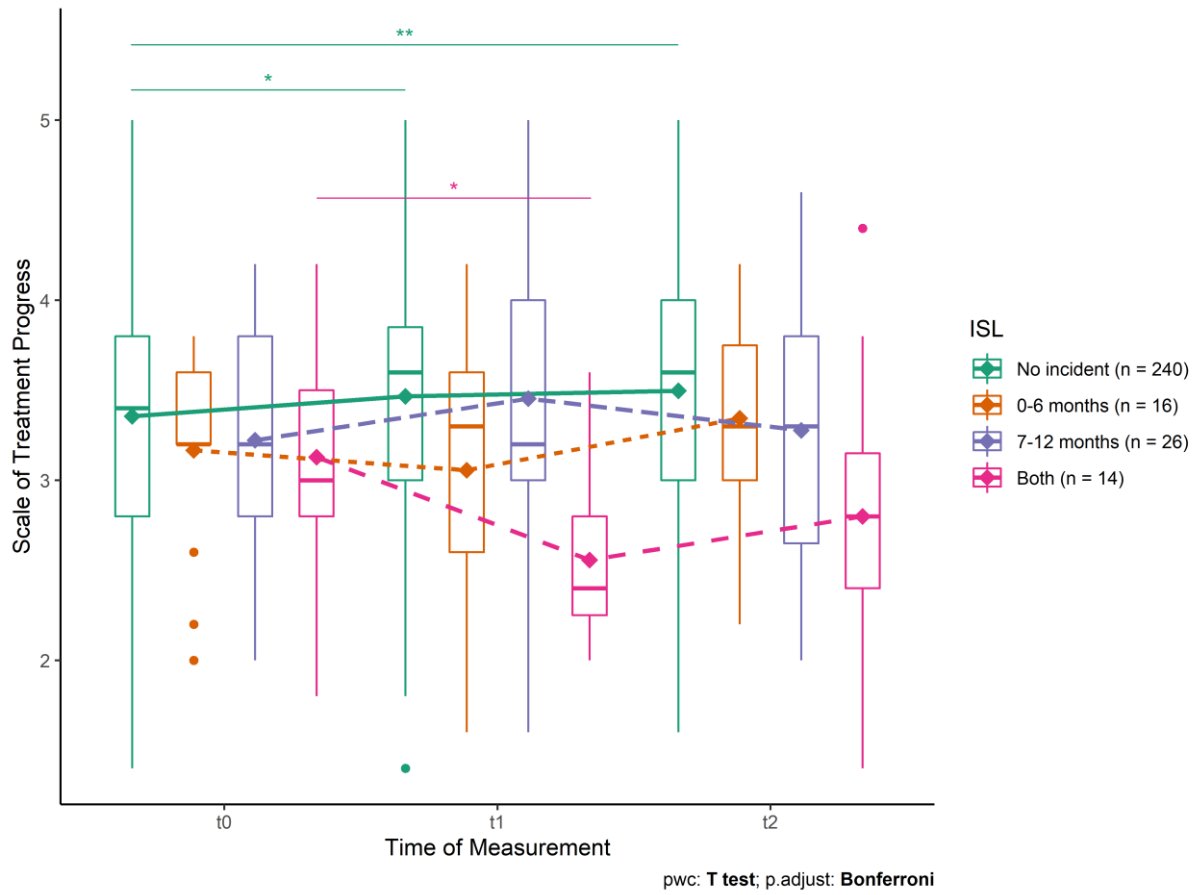


Figure 1. Change of the Scale of Treatment Progress over the times of measurement divided by ISLs. Displayed are box plots and the mean of the Scale of Treatment Progress as diamonds. The horizontal lines above indicate significant change over time according to post-hoc t-tests ($*p < .05$; $**p < .01$).