RAC-003 https://doi.org/10.5080/61upk.ozt414

STRUCTURED RISK ASSESSMENT OF VIOLENT REOFFENDING OVER 24 MONTHS AFTER DISCHARGE IN A FORENSIC PSYCHIATRY COHORT

Yasin Hasan Balcioglu[1], Ibrahim Sabri Akyuz[1], Fatih Oncu[1], Howard Ryland[2]

[1]Forensic Psychiatry Unit, Bakirkoy Prof Mazhar Osman Training and Research Hospital for Psychiatry, Neurology, and Neurosurgery, Istanbul, Türkiye
[2]Department of Psychiatry, University of Oxford, Oxford, United Kingdom

BACKGROUND AND AIM: Violence after discharge from psychiatric services represents a major clinical and public safety concern, and in forensic psychiatry violent reoffending is particularly salient during the early- to mid-post-discharge period when risk is highest.

Accurate violence risk assessment is essential to inform discharge decisions, post-discharge management, and resource use (1). In Turkiye, although the number of forensic psychiatric institutions has increased, the inflow of patients has risen disproportionately, leading to greater clinical heterogeneity and high patient turnover, with premature discharge constituting the main practical challenge rather than the avoidance of prolonged hospitalisations. Despite these pressures, structured risk assessment tools are not routinely used in Turkish forensic psychiatric practice, leaving clinicians with substantial challenges in assessing violence risk and making empirically informed discharge decisions. To address this gap, this study examines violent reoffending over 24 months after discharge in a forensic psychiatry cohort using a structured actuarial approach based on the Forensic Psychiatry and Violence tool Oxford (FoVOx), a brief and freely available risk assessment tool developed using large national Swedish register data (2), to evaluate its performance in a Turkish sample and support risk-informed clinical practice.

METHODS (Ethics Committee Approval must be obtained and the number should be specified.):This retrospective cohort study was conducted in a forensic psychiatry inpatient unit in Istanbul and included adult patients under compulsory court-ordered treatment due to criminal non-responsibility or diminished responsibility who were discharged from the hospital within a six-month inclusion period. Patients were excluded due to incomplete records, interruption of the index admission because of transfer to prison, absconding, or death, death within two years after discharge, inability to contact the patient or their relatives, or lack of consent. Data were collected retrospectively from clinical records, institutional databases, and through contact with patients or their relatives (IRB approval date: 21.08.2025; approval number: 16/30).

The primary outcome was violent reoffending within 24 months after discharge, with 12-month outcomes also examined, defined as the occurrence of any recorded violent offense during fixed follow-up periods and analyzed as a binary outcome (yes/no).

Violence risk was assessed using the FoVOx model, and individual risk estimates were calculated as percentage probabilities using the original online FoVOx calculator (3). Risk factors included in the model were age at discharge; male sex; prior violent and serious violent offending; primary diagnosis at discharge; drug and alcohol use disorder at hospitalisation or discharge; personality disorder at discharge; employment status before admission; ≥5 previous inpatient episodes; lifetime drug use disorder; and length of inpatient stay ≥1 year. Discriminative performance was evaluated using the area under the receiver operating characteristic curve (AUC). In addition, clinically relevant FoVOx risk thresholds of 5% and 20% were applied to calculate sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) with 95% confidence intervals.

RESULTS: The study sample consisted of 273 forensic psychiatric patients discharged from inpatient care. The majority were male (82.4%), with a mean age at discharge of 39.8 ± 11.1 years. Schizophrenia spectrum disorders were the most common primary diagnosis (67.8%). Violent reoffending occurred in 5.9% of patients within 12 months and in 17.6% within 24 months after discharge. In binary comparisons, patients who reoffended within 24 months were more likely to be male, younger at discharge, and to have a history of substance use disorder at or prior to admission, personality disorder, and previous violent offending. FoVOx-calculated original risk estimates ranged from 0% to 51% for the 24-month horizon (mean 12.39%) and from 0% to 33% for the 12-month horizon (mean 7.35%). When violent reoffending rates were examined across FoVOx risk categories, no violent reoffending was observed in the low-risk group (≤5%) at either 12 or 24 months, whereas reoffending rates reached 38.5% at 12 months and 55.8% at 24 months in the high-risk group (≥20%) (Table 1). At 24 months, the FoVOx model showed good discrimination (AUC = 0.87, 95% CI: 0.83–0.92). Sensitivity, specificity, PPV, NPV and AUC at the 5% and 20% risk thresholds for both follow-up periods are presented in Table 2. At 24 months, calibration was acceptable,

with predicted risk (12.4%) lower than observed outcomes (17.6%; Brier score = 0.118).

CONCLUSIONS: In this forensic psychiatry cohort, violent reoffending occurred within 12 months and increased at 24 months after discharge, confirming the post-discharge period as a clinically critical window for violence risk management. Violent reoffending was more common among younger male patients and those with substance use disorder, personality disorder, and prior violent offending, consistent with existing evidence. FoVOx risk estimates showed a clear gradient, with no reoffending in the low-risk group (≤5%) and markedly higher rates in the high-risk group (≥20%), reaching 55.8% at 24 months, consistent with the original model development study (2).

These findings highlight the model's strong discriminative power, particularly in reliably identifying very low-risk individuals, and its potential utility in informing less restrictive discharge and follow-up strategies. However, the higher false-positive rate at the upper end of the risk spectrum suggests that contextual model updating may be needed to balance public safety with patient rights (4). Limitations include the retrospective single-centre design, potential under-ascertainment of outcomes due to limited access to official judicial records, and the use of fixed follow-up periods rather than time-to-event data. The findings suggest that FoVOx, as an actuarial approach, shows promising clinical utility in a Turkish forensic psychiatry context. In settings where structured violence risk assessment tools are not routinely used and clinicians face increasing pressure due to high patient turnover and unclear discharge thresholds, a simple, feasible, and clinically relevant model may provide meaningful support, particularly given the recent introduction of regulations for high-security forensic psychiatry centers in Turkiye. When applied alongside clinical judgment, it may promote more consistent, transparent, and risk-informed discharge decisions. Model updating and practical integration into routine forensic psychiatric practice in Turkiye remain important considerations.

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Keywords: actuarial risk models, forensic psychiatry, offending, violence risk assessment

Table 1. Risk categories and observed violent reoffending rates

Follow-up	Risk category	Violent reoffending, % (n/N)
12 months	Low (≤5%)	0% (0/109)
	Moderate (5–20%)	7.3% (11/151)
	High (≥20%)	38.5% (5/13)
24 months	Low (≤5%)	0% (0/50)
	Moderate (5–20%)	11.1% (19/171)
	High (≥20%)	55.8% (29/52)

Table 2. Discriminative performance of the risk model at clinically relevant thresholds

Follow-up	Threshold	Sensitivity % (95% CI)	Specificity % (95% CI)	PPV % (95% CI)	NPV % (95% CI)	AUC (95% CI)
12 months	5%	100 (79–100)	42 (36–48)	10 (6–17)	100 (96–100)	0.85 (0.77–0.94)
12 months	20%	31 (12–58)	97 (94–99)	38 (15–65)	96 (92–99)	0.85 (0.77–0.94)
24 months	5%	100 (92–100)	22 (17–28)	21 (15–29)	100 (97–100)	0.87 (0.83–0.92)
24 months	20%	60 (45–74)	90 (85–93)	56 (41–69)	91 (86–95)	0.87 (0.83–0.92)

Note: Sensitivity (true positive rate) = TP/(TP+FN), Specificity (true negative rate) = TN/(TN+FP), Positive Predictive Value (PPV) = TP/(TP+FP), Negative Predictive Value (NPV) = TN/(TN+FN), and Area Under the Receiver Operating Characteristic Curve (AUC) indicates overall discriminative performance; where TP = true positives (violent reoffending correctly predicted), FP = false positives (reoffending predicted but not observed), TN = true negatives (no reoffending correctly predicted), and FN = false negatives (reoffending not predicted but observed).