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Absconsion in forensic psychiatric services: a systematic review of literature

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Abstract

While serious concerns are often raised when patients abscond or leave unauthorized from psychiatric services, there is limited knowledge about absconsion in forensic psychiatric services. Following the preferred reporting items for systematic reviews and meta-analyses guideline, we searched Medline/PubMed, PsycINFO, EMBASE, CINAHL, Scopus, and Web of Science through May 2020 for eligible reports on absconsion in forensic patients with no language limits. The search string combined terms for absconsion, forensic patients, and psychiatry in various permutations. This was supplemented by snowball searching for additional studies. Of the 565 articles screened, 25 eligible studies, including two interventional, seven cross-sectional, and 16 case-controlled studies spanning five decades were included. Absconsion and re-absconsion rates ranged from 0.2% to 54.4% and 15% to 71%, respectively, albeit higher rates trended with less secure psychiatric units. Previous absconsion, aggression, substance use, high Historical Clinical Risk Management-20 score, antisociality, psychiatric symptoms, sexual offending, and poor treatment adherence were the factors reported with a degree of predictive value for absconsion. However, the construct of absconsion was heterogeneous in the included studies and the quality of evidence on the predictors of absconsion was limited. Serious risky behaviors including re-offending, violence, self-harm, suicide, rape, and manslaughter were perpetrated by patients during unauthorized leave. Nevertheless, the rates of re-offending were generally low in the included studies (highest recidivism rate = 0.11). There is need for standardized assessment and documentation of absconsion to improve risk analysis and management. Furthermore, it is necessary to develop a structured guideline for defining absconsion, and to create a protocol that operationalizes all absconsion-related behaviors/events to promote reliable assessment and comparative analysis in future studies.

Introduction

Absconsion or unauthorized leave from psychiatric services is a major problem with wide-reaching implications on public safety and patient care.[1–5] Serious concerns are often raised when patients with mental illness abscond, particularly when a forensic patient is involved.[5] Several consequences, including negative media scrutiny of the affected hospital and loss of public confidence in psychiatric services, can result when patients leave unauthorized.[4,5] Importantly, absconsion can have negative impacts on the patient (eg, worsening mental/physical conditions, injuries, suicide, etc.), the hospital (eg, direct/indirect costs, stress on staff, bad publicity, etc.), the police (eg, time demand, resources to arrest the absconder, injuries, etc.), and the public (eg, worry, stress, high-risk behaviors, etc.).[2,6–8]

Forensic psychiatric services are designed to provide care to patients with mental illnesses at the interface of the criminal justice system.[9] While recovery and community reintegration of patients are important goals of forensic mental health services, safeguarding the public from harm posed by forensic patients remains a core objective of forensic psychiatry.[9–13] Implicitly, forensic psychiatric services are expected to maintain a "secure" therapeutic milieu for patients on admission or out-patients with community access, and be "absconsion-proof" while mitigating the risk posed by such patients. Notwithstanding the level of security (namely: minimum, medium, and maximum), and the measures in place, addressing the risk of absconsion in forensic populations remains imperative for public and patient safety.[2,14–18]

Given the significance of absconsion, accurate risk assessment and analysis become extremely critical to facilitate discussion about risk-associated behaviors (including violence, suicide, re-offending) and appraise the degree to which harm is likely to occur in the future.[19] In this regard, the analytic synthesis of existing literature to understand risk scenarios for absconsion,

attributes of absconders (including personal, clinical, and legal-criminogenic characteristics), and service or setting-related factors that are proximal to absconsion incidents are necessary for evidence-informed assessment and management. However, there is a paucity of review literature on absconsion, especially reviews describing forensic psychiatric populations. The limited number of reviews on absconsion are mostly focused on general psychiatric service settings,[1,2,4,20,21] thus, they are limited in scope regarding the unique risk-issues in forensic patients as well as the nuances related to the forensic psychiatric services.[5,12] For example, forensic patients are detained compulsorily, many of them for a prolonged time, unlike patients in other mental health settings. Further, the majority of forensic patients tend to have severe and persistent mental illnesses or personality disorders, substance use problems, and poor engagement with care in the absence of court-mandated treatment.[12,22] These unique risk issues in forensic patients suggest potentially increased risk of absconsion, especially with the promotion of "humane" and least restrictive therapeutic environments in forensic psychiatric services, to balance public safety with patient rights and needs.[23]

To our knowledge, only two literature reviews have looked at absconsion in the forensic psychiatric population.[4,5] While Wolber and Karanian[4] presented a broad thematic perspective on assessing the risk of absconsion in forensic and other psychiatric inpatients, Campagnolo et al[5] conducted a qualitative description of risk factors and motivation for absconsion in forensic psychiatry in 19 studies, including three review papers. In their report, Wolber and Karanian highlighted the need for a comprehensive assessment of the risk of absconsion, particularly in those with prior attempts, current verbalization of intent to abscond, and who represent a serious threat to self and others. Notably, the level of threat to the public and patient safety is an important factor which must be considered in the risk assessment process.[4] On the other hand, Campagnolo et al[5] noted that absconsion can be goal-directed, accidental, related to active symptoms, and motivated to deal with boredom or frustration. In addition, the most common risk factors for absconsion were history of absconsion, high score on risk-of-violence assessment tools, substance misuse, acute mental state, and socio-environmental factors.[5] Notwithstanding, these reviews were not exhaustive, nor did they address particular issues that are relevant to clinical and research practice, including case-definition of absconsion, rates of absconsion and re-absconsion, attributes of absconders, and complications or negative outcomes of absconsion in a forensic psychiatric setting. Additionally, none of the reviews were entirely consistent with the principles recommended in guidelines for reporting a systematic review of original research reports. Hence, we pursued this systematic review to improve the current understanding of absconsion in forensic psychiatric services, employing the guideline for reporting a systematic review of original studies.[24,25]

The specific study objectives are to:

- describe study-defined construct or case-definition of absconsion in forensic patients,
- estimate per study rates of absconsion, re-absconsion, and recidivism in absconders,
- investigate the factors associated with absconsion with predictive value, and
- assess the quality of existing research evidence on absconsion in forensic psychiatric settings and make relevant recommendations.

Methods

Eligibility criteria

We followed the preferred reporting items for systematic reviews and meta-analyses guidelines in conducting this review.[24,25] All literature on absconsion events in forensic psychiatric settings until May 2020 was searched without language limits. The eligibility criteria for study selection were broad to be comprehensive and appraise as much research as was available. Thus, we included all study designs but excluded conference abstracts that were only published in abstract form. Other inclusion criteria were all study-defined constructs of absconsion,[26] including an attempt to escape, breach in trial leave or security, and escape from inpatient admission or during escorted or indirectly supervised privileges (Information included in Table 1).

Information sources

We searched databases including Medline/PubMed, PsycINFO, CINAHL, EMBASE, and Web of Sciences for all years through May 2020 for eligible reports. The bibliographies of the included studies and relevant reviews were snowball searched for additional studies, and study authors were contacted to request their work where necessary. Our institution's library service was utilized to procure full-text copies of any reports the research team could not retrieve themselves. In one study conducted in Germany, a library staff member (KC) with German language fluency assisted in translating the article to extract relevant information on our study objectives.

Search strategy

We utilized a search strategy addressing the following concepts, translated into appropriate database descriptors and free-text terms, using a multitude of synonyms: absconsion, forensic patients, and psychiatry (the detailed search strategy and search terms for databases through OVID is included in Appendix A).

Study selection

Titles and abstracts were screened independently by at least two authors (ATO, SLB, and TOO) to shortlist studies for further review. The full texts of the shortlisted studies were reviewed by at least two authors independently (ATO, SLB, and TOO) according to the inclusion criteria. Disagreement about inclusion or exclusion of studies was resolved by discussion between authors and consultation with the senior author (GAC) to reach consensus.

Data collection process and analyses

In total, we screened 595 titles and abstracts to produce a shortlist of 92 potential reports for full-text review. Of these 92 reports, 25 studies were selected for inclusion in the final review (see Figure 1). Data items collected from the selected reports (n = 25) are presented in the study tables and supplementary material. Briefly, we collected information from each eligible report on author's name, publication year, country where study was conducted, study design, sample size, sample age distribution, gender distribution, security levels, number of absconders, number of absconsion incidents, rate of absconsion, factors associated with

Table 1. Characteristics of Included Studies in Chronological Order.

Author name, Country	Design Year	Sample characteristics	R_a (%) NAI(n)	IDA	SL	Rr-a	RO_a	Main study findings on absconsion
Morrow[26] United States	CC 1969	N=40 vs 80, TNP=nr Age (SD)= 14-39 yrs Male=All SDn=10 yrs	^rR_a=3% NAI= 49 (G_{ea}=9)	AA AE	MA	Yes 15%	nr	Absconders were younger, transferred from penitentiary, unemployed or irregularly employed, have history of alcoholism; have previous felony convictions, and oldest siblings rather than youngest (P<0.01). Absconsion likely during early period of admission, evening shifts with less/no staff, no-off-ward activities, and warmer months (NIS).
Cooke et al.,[14] United States	CC 1978	N=86 vs 64, TNP=572 Age (SD)=29.9(nr) yrs Male= nr SDn=5.5 yrs	^rR_a=15% NAI=nr	AE	nr	nr	nr	Absconsion was predicted correctly in 67% based on MMPI using cut-off score of three. Based on MMPI characterological profile, absconders are more likely to be agitated, anxious, paranoid, and experiencing pre-psychotic or psychotic symptomatology (NIS).
Scott[31] USA	CC 1980	N=71 vs 97, TNP=907 Age(SD)=29.9(8.3)yrs All females SDn=14 yrs	^cR_a=8.3% NAI= 1.42 (SD = 2.94)	AA AE AL	MI	Yes nr	nr	Absconders were significantly younger and imprisoned as juveniles. Number of absconders was associated with prior adult psychiatric hospitalizations, number of juvenile imprisonments, and sentence length. Number of absconders was related to scores on MMPI scales: F, PD, Sc, PT, MA, and L. Standard Ec scores correlated with age, and number of children.
Bieber et al.,[32] United States	CS 1988	N=22, TNP=225 Age (SD)=nr Male= All; SDn=10 yrs	^cR_a=9.3% NAI=nr	AE	nr	nr	Yes	The variable "number of escapes" enhances the identification of those who engaged in post-hospitalization crime when added to the prediction model.
Smith et al.,[15] United Kingdom	CC 1990	N=17 vs 164, TNP=181 Age(SD)= 29(11) yrs Male=16(94%) SDn=6 yrs	^cR_a=9.4% NAI=23	AE AEL AUL	ME FU	Yes 57%	Yes	Absconders were more likely to be younger, male, psychotic, have history of absconding, and absconded while on community parole. Absconding was unpredictable but impulsive and reflect opportunistic act (NIS).
Nicholson et al.,[33] United States	CC 1991	N=5 vs 15, TNP=61 Age(SD)=33.8(9.3)yrs Male= 56(91.8%) SDn=5 yrs	^rR_a=8.2% NAI=nr	AE	ME FU	nr	Yes	Absconsion correlated with increased number of charges and increase number of arrests. This pattern was maintained when the absconders were compared with those who completed their rehabilitation program and discharged normally.
Huws et al.,[34] United Kingdom	CC 1993	N=62 vs 4571, TNP=4, 606 Age(SD)=33(nr) yrs Male= 75% SDn=13 yrs	^cR_a=1.3% NAI=66[#] (G_{ea}=13)	AE AL AUL	MA SH	Yes nr	Yes	Absconders were more likely to have psychopathic disorder. Clear precipitant was rare except refusal to grant permission to attend father's funeral in a case. Evidence for both planning and impulsivity before absconsion was described. Half of absconding each occurred during early periods of admission and trial leave.
Dolan et al.,[35] United Kingdom	CC 1994	N=27 vs 238, TNP=767 Age (SD)= 26 (nr) yrs Male=26(96.3%) SDn=7 yrs	^cR_a=3.5% NAI=31	AA AE	ME	Yes 33%	Yes	Presence of intercurrent mental illness, anti-social traits and previous escape operates as higher risk. Clustering of episodes as contagion effects was important and early period of admission was typical for absconsion (NIS). Most absconders were young single men and those with history of burglary were adept at effecting escape.
Nussbaum et al.,[36] Canada	CC 1994	N=7 vs 117, TNP=3000 Age (SD)=nr Male=All SDn= 16 yrs	^cR_a= 0.2% NAI=7	AE	ME FU	Yes 43%	nr	Absconsion was associated with manipulative behaviour, antisocial personality disorder and substance abuse. The associated factors were categorized into environmental, legal, and personal.
Quinsey et al.,[37] Canada	CC 1997	N=27 vs 51, TNP=nr Age (SD)=38.0(7.9) Male=nr SDn= 15yrs	R_a=nr NAI=nr	AE	MI ME MA	nr	nr	Dynamic anti-sociality, psychiatric symptoms and poor compliance were significant predictors of absconders.

Table 1. *Continued*

Author name, Country	Design Year	Sample characteristics	R_a (%) NAI(n)	IDA	SL	Rr-a	RO_a	Main study findings on absconsion
Gacono et al.,[38] United States	CC 1997	N=18 vs 18, TNP=nr Age (SD)= nr Male= nr SDn=10 yrs	R_a=nr NAI=nr	AE	MA FH	nr	nr	Absconsion were more likely to receive a diagnosis of malingering, less likely to carry a psychotic diagnosis and be recipients of neuroleptics. Escapees received more charges of violent crime compared to controls (29 versus 9), and PCL-R total and factor 1 (aggressive narcissism) scores significantly discriminated between the groups. Factor 2 scores (antisocial lifestyle) was significantly higher in elopers.
Brook et al.,[29] United Kingdom	CC 1999	N=36 vs 150, TNP=6500 Age(SD)= 30(9.9) yrs Male= 34(94.4%) SDn=10 yrs	^cR_a=0.6% NAI=36	AA AE AL	MA SH	No	Yes 0.11	Multiple absconding, acting-out behaviour, history of assault, younger age, shorter duration of stay, impulsive-aggressive behaviour, antagonistic to rules or authority, and poor treatment adherence were associated with absconsion. However, acting out, actual bodily harm and multiple absconding were predictive.
Moore et al.,[39] United Kingdom	CC 2000	N=44 vs 4800, TNP=5133 Age(SD)=36.1(nr) yrs Male= 36(81.8%)	^cR_a=0.8% NAI=nr	AE AL	MA H	nr	nr	Absconders are significantly younger, diagnosed with personality disorder at admission, and admitted or short-term legal order. Predictors of absconsion include young age, possession history of arson, robbery, and wounding.
Mahler et al.,[40] Germany	CC 2000	N=86 vs 112 TNP=nr Age(SD)= 35(nr) yrs Male=77(89.5%) SDn=5 yrs	^rR_a=2% NAI=190	AA AE AL	nr RC	Yes nr	Yes .008	Absconsion was associated with personality disorder, sexual offences and property offences.
Beer et al.,[41] United Kingdom	CC 2000	N=17 vs 61, TNP=78 Age(SD)=16-65yrs Male=12(71%) SDn=6.5 years	^rR_a=22% NAI=38	AA AE AEL AUL	MI	Yes 71%	No	History of absconsion, and substance misuse and dependence were significantly common among elopers. Other clinical factors that tended towards significance include history of non-compliance, sexually inappropriate behaviour, and childhood conduct problems
Hayward et al.,[42] Malawi	CS 2010	N=154, TNP=283 Age(SD)=30.4 (nr)yrs Male=91.5% SDn=10yrs	^rR_a=54.4% NAI= nr	AE	GU	nr	nr	Absconsion rate was high and linked with low security level and staff numbers, particularly at night (NIS).
Urheim et al.,[23] Norway	CS 2011	N=nr, TNP=170, Age(SD)=34.1 yrs, Male=76.7% SDn=18 yrs	R_a=nr NAI= 24	AE	MA PW	nr	nr	Increased patient autonomy to improve relational safety and security was compatible with maintenance of low numbers of absconsions (average of 1.3 per annum) NIS
Andreasson et al.,[43] Sweden	CS 2014	N=46, TNP=121 Med(range) =38(17-79) yrs Male=101(80%) SDn= 6 yrs	^rR_a=39% NAI=154	AE AL	UH	Yes	Yes	Majority of absconsion incidents occurred when the patients had permission to move about unaccompanied. The correlates of absconsion were specializing court supervision and longer hospital stay was predicted by absconding.
Scott et al.,[44] Australia	CS 2014	N=14, TNP= nr Age(SD)= nr Male= nr SDn=10 yrs	R_a=nr NAI= 24	AE AL	MA	Yes 36%	Yes 0.08	There was low incidence of absconsion over the 10-year period. Absconsion occurred mainly during unescorted leave
Wilkie et al.,[45] Canada	CC 2014	N=57 vs 56, TNP=395 Age(SD)=40.1(10.9)yrs Male= 44 (77.2%) SDn=2 yrs	^rR_a=14.4% NAI= 102	AA AE AL	MI ME	Yes 39%	Yes	Absconders were more likely to have a history of unsuccessful absconding, comorbid use and higher risk for future violence based on HCR-20 score. The predictors of absconsion based on regression analysis include substance use and HCR-20 score

Table 1. *Continued*

Author name, Country	Design Year	Sample characteristics	R_a (%) NAI(n)	IDA	SL	Rr-a	RO_a	Main study findings on abscosion
Cullen et al.,[3] United Kingdom	CS 2015	N=27, TNP=135 Age(SD)=38.5(nr) yrs Male= 90% SDn=2 yrs	^rR_a=20% NAI=56	AE AEL AL	MI ME	Yes	nr	Predictors of abscosion based on regression analysis are History of sexual offending, another index offence, previous abscosion, recent inpatient verbal aggression, recent inpatient substance use and verbal aggression
Simpson et al.,[22] Canada	CIS PPIC + PI 2015	N=86, TNP=nr Age(SD)=41.7(12.4) yrs Male=76.6% SDn=4yrs	^rR_a=12.0% 13.8% and 17.8% NAI=188	AA AE AL	MI ME	Yes 47%	Yes 0.04	Prevalence of abscosion reduced progressively ranging from before PI (17.8%), during PI (13.8%) and following PI (12.0%). Abscosion in minimum versus medium secure unit was 78% versus 22%. Correlates of abscosion Include longer lengths of stay, higher risk scores on the HCR-20, comorbid substance use disorder and problematic personality traits or disorder
Mezey et al.,[46] United Kingdom	CS 2015	N=54, TNP= 375 Age(SD)=nr Male= 43 (80%) SDn=5 yrs	^cR_a=14.4% 0.04/1000 bd (escape) 0.26/1000 bd (abscond) NAI= 77	AE AL	MI ME	Yes 28%	Yes	Based on descriptive analysis, abscosion was common in those with hospital order with restrictions on discharge, evidence of planning, and more around the month post-admission. The motives for absconding included wanting freedom, to drink, use drugs, family worries and/or dissatisfaction with aspects of treatment. Recommendation include relational security.
Tully et al.,[47] United Kingdom	CIS PPIC+EMI 2016	N= nr, TNP=nr Age(SD)= nr Male=nr SDn=1 yr	^rR_a=0.33%[b] NAI=33	AE AL	ME	nr	Yes	Violation of leave was significantly less likely following the introduction of Global Positioning System Intervention (GPSI) Correlates of abscosion-nr
Martin et al.,[48] Canada	CC 2018	N=33 vs 31, TNP=nr Age(SD)= 38(nr) yrs Male=nr SDn=3 yrs, 8 months	R_a=nr 0.32/1000bd NAI=54	[a]AL AE	MI ME	Yes 39%	Yes nr	Compare to controls, absconders had higher HCR-20 score and secondary diagnosis of substance use.

Abbreviations: AA, attempted abscosion; AE, abscosion inform of escape; AEL, abscosion during escorted leave; AL, abscosion during leave; AUL, abscosion during unescorted leave; bd, bed days; CC, case-control; CD, clear definition of abscosion was provided; CS, cross sectional; Ec, escape; EMI, electronic monitoring intervention; FU, forensic unit; G_{ea}, group episode of abscosion; HCR-20, historical clinical risk management-20; IDA, incidents defining abscosion; IF, Infrequency; L, Lie; MA, hypomania; MA, maximum; ME, medium; MI, minimum; MMPI, Minnesota Multiphasic Personality Inventory; N, number of patients that absconded vs control; NAI, number of abscosion incidents/episodes; NIS, no inferential statistics; nr, not reported; OR, odds ratio; PCLR, psychopathy checklist-revised; PCS, prospective cohort study; PD, psychopathic deviate; PI, policy intervention study; PPIC, prepost intervention cross sectional; PT, psychasthenia; PW, private ward; R_a, rate of abscosion; ^cR_a, calculated rate of abscosion; ^rR_a, reported rate of abscosion; Rr-a, rate of re-abscosion; RC, regional centre; RO_a, re-offending during abscosion; Sc, schizophrenia; SD, standard deviation; SDn, study duration; SH, special hospital; SL, security level; TNP, total number of patients at risk of abscosion; UH, University Hospital, yrs, years; %, percent; 95% CI, 95% confidence Interval.
[a]AL, unauthorized leave greater than 30 minutes.
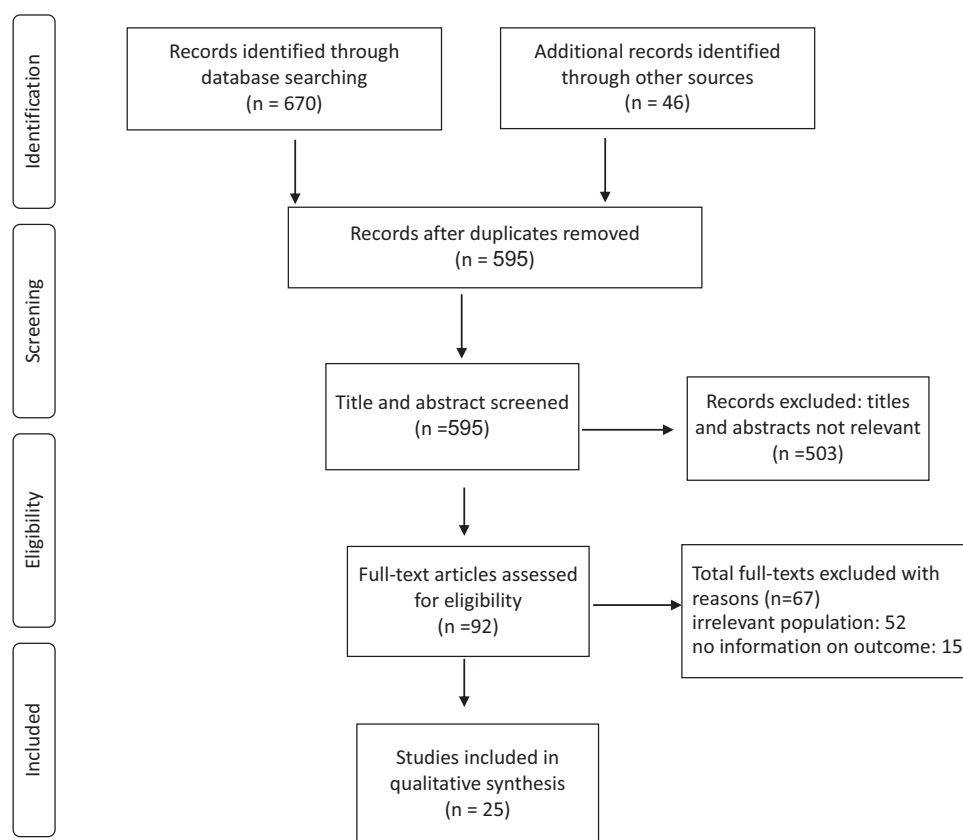[b]Event-based absconsion rate.

Figure 1. Flow of studies through the systematic review.

absconsion on univariate analysis, predictive factors of absconsion on multivariate analysis, complications or outcome of absconsion, and the assessment scales used to evaluate absconders. The information on the different security levels (minimum, medium, and low) was based on the information presented in each report. Generally, security levels in the forensic system are based on multi-dimensional matrices that involve environmental, relational, and procedural security composites.[16,17] Detailed information on the incidents (including attempted absconsion [AA], absconsion that was actual escape [AE], absconsion during escorted leave [AEL], absconsion during leave [AL], and absconsion during unescorted leave [AUL]) used in defining cases of absconsion were included. Three metrics including person, event, and bed-days rates were used to report the rate of absconsion, albeit we placed emphasis on the person-based estimate of absconsion in this study in line with extant literature.[27–29] In studies where the rate of absconsion (R_a) was not reported, we calculated the percent rate of absconsion by dividing the number of patients that absconded [N_a] by the total number of patients at risk [N_{pr}] multiplied by 100 [$N_a/N_{pr} \times 100$] based on the formula used in previous studies.[27–29] This was supplemented by reporting the total number of absconsion incidents that were reported during the study period in each eligible report with this information. In studies where relevant data were available, we estimated the rate of re-absconsion (Rr-a) by dividing the number of absconders with two or more episodes of absconsion by the total number of absconders multiply by 100. In addition, the re-offending rate post absconsion was estimated in studies that reported relevant information by dividing the number of absconders who re-offended during unauthorized leave by the total number of absconders. Re-offence broadly included any breach of a

law or rule or an illegal act during unauthorized leave that was serious enough that criminal charges were or could have been laid. Relevant information on the complications or negative consequences of absconsion, including a description of the nature of offence during the episodes of unauthorized leave was provided as described in the included reports.

Quality/bias assessment

Overall, 25 eligible studies on absconsion in forensic patients with different designs were included. Study quality assessment tools of the National Institutes of Health (NIH) for the assessment of Observational Cohort and Cross-Sectional Studies, Case-Control, and Controlled Intervention Studies were used to assess the quality of the included studies.[30] We evaluated each individual study on a range of 12 to 14 items based on the study design to produce a comprehensive overview of the quality/bias in each of the eligible study, and highlighted relevant overall quality limitations.

Results

Study characteristics

A total of 25 eligible studies[3,14,15,22,23,26,29,31–48] on absconsion spanning about five decades from 1969 through May 2020 were included in this review. Of the 25 included studies, two were interventional,[22,47] seven were cross-sectional,[3,23,32,42–44,46] and the remaining 16 were case-control studies.[14,15,26,29,31,33–41,45,48] The study settings in the included reports (n = 25) were distributed across eight different countries representing several jurisdictions.

However the majority of the studies (n = 24) were conducted in developed countries, including the United Kingdom (n = 9),[3,15,29,34,35,39,41,46,47] United States (n = 6),[14,26,31–33,38] Canada (n = 5)[22,36,37,45,48] and one study each was conducted in Germany,[40] Sweden,[43] Norway,[23] and Australia.[44] Only one study from Malawi was conducted in a developing country.[42]

Considering all 25 eligible studies, 1 036 patients with unauthorized leave from forensic psychiatric services covering different periods and study durations were studied. The study duration ranged from one[47] to 18[23] years. The study sample size for each of the 25 reports ranged between five and 154. The three types of security levels, including minimum, medium, and maximum that have been described in forensic psychiatric services based on environmental, relational, and procedural security multidimensional matrices[16,17] were covered in the eligible reports. Notably, 14[15,22,23,29,33,34,36–39,45–48] reports described studies that conducted analysis using data on absconders in more than one type of security level. Majority of the study samples in the 25 reports were males in their fourth decade of life.

Construct of absconsion

The incidents of unauthorized leave that defined the cases of absconsion in the included studies (n = 25) varied, including AA, AE, AEL, AL, and AUL. While some studies were broadly inclusive in their construct by defining absconsion as an attempt to escape, breach in leave, and actual escape (n = 17),[3,15,22,26,29,31,34,35,39–41,43–48] other studies restricted absconsion to only the cases of patients with "actual escapes" from the treating facility (n = 8).[14,23,32,33,36–38,42] Specifically, "actual escape" was defined as unauthorized leave involving a breach or failure of physical and procedural security in which a patient breached the secure perimeter of the hospital or unit. On the other hand, absconsion was more of a failure of relational as well as procedural security[49] For example, Mesey et al noted that escape: "is if a patient gets outside the fence, wall, reception or other declared hospital boundary without the knowledge or permission of the staff, and absconding is when a patient takes unauthorized liberty during leave outside the perimeter of the unit/hospital by breaking away from the supervision of staff."[46]

Eleven reports[3,15,22,29,34,35,39,41,44,46,48] included a clear description of the construct of absconsion, only three studies[44,45,48], considered "time" in the construct of absconsion to exclude mere lateness from leave, while one study specified the amount of time by categorizing only unauthorized leave greater than 30 minutes as incidents of absconsion.[48] Scott et al[44] introduced the term "technical absences without permission" to describe incidents of absconsion reported by patients of their volition to their mental health service about a delay (eg, from vehicle breakdown or missed public transport), and returned to the service voluntarily, although outside the designated time (see Table 1).

Rate of absconsion

Three rates of absconsion (including person, event, and empty-bed-days rates) were reported, albeit we placed emphasis on the person-based estimate of absconsion in the present study in line with extant literature.[27–29] The rates of person-based absconsion ranged from 0.2% to 54.4% in all the studies (n = 20)[3,14,15,22,26,29–36,39–43,45–47] that reported or included the relevant data for estimating the rates of absconsion using the method described above.[27–29] Five studies[23,37,38,44,48] did not report the rates of absconsion and lacked data to estimate a person-based

rate. In total, 18 studies[3,15,22,23,26,29,31,34–36,40,41,43–48] described event-based absconsion rates that ranged between 7 and 190 events across all the studies with appropriate information (n = 18). In a similar vein, two studies[46,48] reported absconsion rates per 1 000 bed days, with Mezey et al[46] differentiating between the rate for actual escape (0.04/1000 bed days) from the rates of absconding (0.26/1000 bed days),[46] while Martin et al[48] reported 0.32/1000 bed days for absconding.

Of the two intervention studies, one study examined the impacts of electronic monitoring intervention (EMI)[46] on absconsion and reported the rates of absconsion across three study phases, including 0.33%, 0.14%, and 0.07% during preEMI, within EMI, and post-EMI, respectively. On the other hand, Simpson et al[22] reported about a one-third reduction in both person and event-based index of absconsion with the implementation of a structured professional judgement (rates of 12.0% and 17.8%, post and preintervention respectively) (see Table 1).

Factors associated with absconsion and risk assessment scales

Four scales, including Minnesota Multiphasic Personality Inventory (MMPI)[50] Bell-Panton escape scale (n = 2),[14,31] Historical Clinical Risk Management-20 (HCR-20)[51] (n = 3),[22,45,48] Psychopathy Checklist-Revised (PCL-R)[52] (n = 2)[38,45], and Violent Risk Appraisal Guide[53] (n = 1)[37] were used to categorize the risk in the absconders in some of the included studies. Additionally, several attributes of patients who absconded were described in the included studies (n = 25). For clarity, we outlined the factors that were significantly associated with absconsion on univariate analysis into subcategories, including personal, clinical, environmental, and legal/criminogenic factors (see Table 2).

Personal/sociodemographic factors that were associated with absconsion include male gender,[15,33,34] younger age,[3,15,22,31,35] history of absconding,[3,15,22,34,41,45] longer stay,[22] and noncompliance with privileges or pass[22] among others. One study[34] also reported that social needs, such as compassionate leave for burial or reconnection with mother were related with absconsion.

Clinical and "intra-psychic" attributes of absconders include aggression,[3,22,38] antisocial personality disorder,[34,37,38] psychotic disorder,[37] and impulsivity.[15,34,35,38] In addition, malingering,[38] violence,[22,45] treatment nonadherence,[22,37,41] substance use problems,[3,22,33,41,45,48] and previous hospitalization[33] were significantly common in absconders. A high HCR-20 total risk score,[22,35,45,48] and PCL-R items characterological traits and total score,[22,38] were significantly associated with absconsion.

Environmental and security-issues, such as boredom/frustration,[22,45] minimum security level,[3,22,42,45] poor relational safety,[23] unescorted leave,[15,34,41] warmer months,[45] and lower staff-patient ratio[35,42] were associated with absconsion.

Legal/criminogenic attributes of absconders that were outlined across the included studies include violent offence,[35,38] juvenile offence,[15,31,41] sexually inappropriate behavior,[40,41] property offence,[34,35,40] (eg, house breaking[35]), assault,[35] sexual offence,[35,40] prior arrests,[33] arm-robbery,[35] lesser stay,[34] and previous criminal and correctional record.[35]

Factors with predictive value for absconsion based on multivariate analysis—a range of factors with a degree of predictive value (associated with a higher likelihood) for absconsion was reported in the included studies based on multivariate analysis that allowed controlling for confounders. The effect sizes reported in the studies (n = 7) with information on predictors[3,21,29,37,39,41,45] ranged from 0.01 for young age to 9.03 for substance use/dependence.[21,39] The

Table 2. Factors Associated with Abscomsion in Included Studies.

Factors and categories	Characteristics of absconders/factors associated with abscomsion	Factors with predictive value for abscomsion and effect sizes (Study reported OR or ß)
Personal/ Sociodemographic factors	Male,[15,34,35] younger age,[3,15,22,31,35] ethnicity,[22,35] group effect,[34] history of absconding,[3,15,22,34,41,45] longer stay,[22] noncompliance with privileges or pass,[22] compassionate leave to reconnect with mother/family[34] or attend social function like burial.[34]	• Young age[39] [ß = 0.01] • Previous absconding[3,41] [OR = 2.60 and 4.74] • Multiple absconding[29] [OR = 6.9]
Clinical/Intra-psychic factors	Aggression,[3,22,38] Antisocial personality disorder,[34,37,38] psychotic disorder,[37] impulsivity,[15,34,35,38] malingering,[38] violence,[22,45] treatment nonadherence,[22,37,41] substance use problems,[3,22,33,41,43,48] previous hospitalization,[33] personality disorder,[15,34,37,40] high HCR-20 total risk score,[22,35,45,48] PCL-R items characterological traits and total score,[22,38] early period of admission[35] and disorganized behavior/active symptoms.[5,23,27]	• Recent verbal aggression[3] [OR = 3.93] • Recent in-patient substance use [3,41] [2.99] • Comorbid substance use dependence[41] [OR = 9.03] • Higher HCR-20 score[45] [ß = 0.11] • Dynamic anti-sociality [37] [OR = nr] • Psychiatric symptoms[37] [OR = nr] • Poor compliance[37] [OR = nr] • Acting out[30] [OR = 5.8]
Environmental factors (physical/ sociological)	Boredom/frustration,[22,45] minimum security level,[3,22,42,45] poor relational safety,[23] unescorted leave,[15,34,41] warmer months,[45] lower staff-patient ratio,[35,42] and group effects ("copy-cat abscomsion")[26,34,36]	
Legal and criminogenic factors	Violent offence,[35,38] juvenile offence,[15,31,41] sexually inappropriate behavior,[40,41] property offence,[34,35,40] (eg, house breaking[35]), assault,[35] sexual offence,[35,40] prior arrests,[33] arm-robbery,[35] lesser stay,[34] and previous criminal and correctional record.[35]	• History of sexual offending[3] [OR = 2.62] • Multiple index offence[3] [OR = 3.00] • Arson[39] [ß = 1.87] • Robbery [39] [ß = 1.88] • Possession of offensive weapon[39] [ß = 1.33] • Defence of self[39] [ß = 1.20]

Abbreviations: HCR-20, historical clinical risk management-20; nr, not reported; OR, odds ratio; PCL-R, psychopathy checklist-revised; ß, standardized [regression] coefficient.

predictive factors for abscomsion included recent verbal aggression,[3] active psychiatric symptoms,[37] recent in-patient substance use,[3,41] dynamic anti-sociality (included items on lack of remorse and empathy, procriminal sentiments [modifiable], and unrealistic discharge plan that were dynamic within the time frame investigated),[37] comorbidity of substance use,[45] poor treatment compliance,[37] and a higher HCR-20 score.[37,45]

Re-abscomsion and negative consequences of abscomsion

Information on the occurrence of re-abscomsion was reported in 14 studies,[3,15,22,26,31,34–36,41,43–46,48] and the estimated rates of re-abscomsion in studies (n = 10)[15,22,26,35,36,41,44–46,48] with appropriate data ranged between 15% and 71%. Of all the included studies (n = 25), 14 studies[3,15,22,29,32,33,34,35,40,43–48] reported incidents of recidivism in patients during unauthorized leave. While the rates of recidivism were generally low (rate as much as 0.11) in the few studies (n = 4)[22,29,40,44] with relevant data, serious re-offending behaviors were reported in patients while on unauthorized leave. The common examples of re-offending behaviors during unauthorized leave include criminal offences,[15,22,33–35,45,46] violence,[22,33,34,45,47,48] (both perpetrator or the victim was described in one patient[45]), aggression,[22] substance use,[22,33,34,45,46,48] sexual behavior,[48] suicide/self-harm,[34,46,48] arm robbery,[33,46] theft,[15,34] assault,[15,33] arrests,[33] threat with knife,[34] rape,[34] and manslaughter of police during arm robbery abroad.[34]

Assessment of study quality

The results of the study quality are presented in the Supplementary material Appendix B. Overall, the quality of all included studies (n = 25) was rated poor (n = 2),[32,43] fair (n = 8)[14,15,33,36–38,44,46] and

good (n = 15)[3,22,23,26,29,31,34,35,39–42,45,47,48] based on the risk of bias items contained in the National Institute of Health risk assessment tool.[30] The high degree of heterogeneity in the construct of abscomsion, the limited number of intervention studies, and lack of power calculation were the major source of bias to the overall study quality. Notwithstanding these limitations in the quality of the studies, the design, outcome measures of abscomsion in the eligible studies were considered the best available evidence for the recommendations made (study quality assessment outcome is included in Appendix B in the supplementary material).

Discussion

Abscomsion in patients with mental illness can disrupt their treatment, and raise serious safety concern,[4] especially if such a patient was an offender with mental illness.[9–13] However, abscomsion in forensic psychiatric services is still relatively understudied, and extant literature is inconclusive on the construct, rates, and predictors of abscomsion in forensic patients. Considering the significant heterogeneity on the findings on abscomsion in forensic patients across empirical studies, we conducted this systematic synthesis of extant literature with the overarching aim of increasing current knowledge on abscomsion. Importantly, we were able to include 25 original studies[3,14,15,22,23,26,29,31–48] conducted in multiple international and legal jurisdictions spanning five decades. It is hoped that this systematic review will facilitate better assessment and documentation of abscomsion events, promote the development of protocol to standardize the management of abscomsion, and form the foundation for new hypotheses-driven studies.

All included studies except one were conducted in well-resourced countries with advanced forensic mental health and

criminal justice systems.[13,54,55] While the scanty research from less-resourced countries in this review is concerning, it seems to reflect the rudimentary nature of forensic psychiatric practice in these developing countries due to the lack of dedicated mental health legislations, poor judicial practices, and limited mental health resources.[11,54] For instance, only 59% of the world's population live in a country where dedicated mental health legislation exists, and this is particularly so in several developing countries.[11,54,55] The age span of the included studies also speaks to the fact that absconsion is a long-standing problem in forensic psychiatric practice,[26] and revisits the need for novel efforts to advance the assessment, risk analysis, and management of absconsion. Taking together, the lack of equitable forensic mental health services globally, and the disproportionately poor research practice on forensic mental health issues in the less developed countries are far from ideal given the several decades of forensic psychiatric practice.

Construct and definition of absconsion

There was notable heterogeneity in the construct of absconsion in the included studies. While some authors[14,23,32,33,36–38,42] strictly define absconsion as actual escapes from forensic psychiatric services, other studies[3,15,22,26,29,31,34,35,39–41,43–48] allowed a degree of flexibility in the definition of absconsion by including patients with any attempt to abscond or breach in their leave. The heterogeneity in the construct of absconsion may partly explain the high degree of variability in the rates of absconsion across the included studies, although contributions from other factors (eg, differences in study duration, context, and security level) are also very likely. Besides, three different estimates and metrics of absconsion rates were reported in the included studies, including estimates based on the number of persons who absconded,[3,14,15,22,26,29–31,34–36,39–43,45–47] the number of absconsion events,[3,15,22,23,26,29,31,34–36,40,41,43–48] and the number of bed-days since patient left unauthorized.[46,48] However, the person-based absconsion rate was the most common estimates reported in studies. Compared to event-based absconsion rate, a person-based estimate can facilitate easy linkage of risk analysis and management with individual patient risk factors, and may be less influenced by repeated counting bias due to re-absconsion events perpetrated by the same patient. Nevertheless, the absconsion rates based on the number of absconsion events and the number of empty bed-days are important information for hospital statistics, health financing purposes, and risk management if reported in composite with the person-based absconsion rate. A pooled analysis of absconsion rates in form of a meta-analysis was not possible given the degree of heterogeneity in the construct of absconsion across the included studies, and other methodological limitations outlined above. For example, the study duration in the individual report was strikingly different, ranging from one to 18 years.[56]

It is possible that notable clinical and research benefits would result from the development of a structured construct of absconsion by experts. For example, several improvements were reported in the field of suicidology with re-constructing of suicide-risk associated behaviors (including "para-suicide")[57] as occurring in a spectrum. A construct that operationalized absconsion-related events or risk-behaviors as occurring in a spectrum may allow disaggregation of absconsion events into those representing "gesture or signal" events, including attempted absconsion, or a breach in leave as "para-absconsion" and absconsion in form of an actual escape or leaving without permission or failure to return. This may help to appropriately categorize variant behaviors that do not totally fit the definition of absconsion. As an example, Scott et al[44] introduced the term "technical absconsion" to describe a variant absconsion behavior caused by a delayed absence that was reported by patients voluntarily due to unforeseen circumstances (eg, accident, transportation problems, and bad weather, etc.). Notwithstanding the approach adopted, there is a need for clarity in the definition of terms and construct of absconsion for better categorization, assessment, and documentation of absconsion events or any related risk-behaviors to facilitate comparative analysis.

Rates of absconsion and re-absconsion

The rates of absconsion in the studies (n = 20) with relevant information ranged from 0.2% to 54.4%.[3,14,15,22,26,29,31–36,39–43,45–47] Notably higher rates of absconsion were reported among forensic patients managed in minimum secure forensic or general psychiatric units.[42,43] For instance, the highest rate of absconsion (54.4%) in all the included studies was reported among forensic patients managed in a nonforensic general psychiatric unit in Malawi.[42] Compared to the present study, relatively lower rates of absconsion have been reported in reviews of studies conducted in general psychiatric units, with an average of 12.6%1 (range: 2%-44%),[1,58] and the rates in nonpsychiatric general hospitals ranged between 0.27% and 2.4%.[59] While a comparative study on absconsion is currently limited due to the methodological issues outlined earlier (eg, variability in construct, study duration, and contextual factors), it is conceivable that higher rates of absconsion are possible in forensic patients due to unique risk issues described above, especially if they are managed in nonsecure units.[42,43] Similarly, higher rates of absconsion may also be because forensic units are likely to be better with documentation and reporting of absconsion events due to mandatory reporting to relevant authorities or stakeholders (eg, police, review board, potential victims, etc.) to mitigate public risk. On the other hand, low rates of absconsion are consistent with studies conducted in maximum secure forensic units with very stringent measures in granting little or no leave privileges. However, this trend does not suggest a zero risk of absconsion or that unauthorized leave is less of a problem in more restrictive or secure forensic setting.[26,44]

The re-absconsion rates in the included studies ranged between 0.15 and 0.71,[15,22,26,35,36,41,44–46,48] underscoring the likelihood of an increased risk of repeated absconsion in forensic patients with the previous history of absconsion or even an attempt. Nevertheless, future comparative studies using study reports with similar construct and better design might help clarify several clinical issues on re-absconsion in forensic psychiatry. It will be interesting if future studies describe the attributes and motivations of repeated absconders.

Assessment tools for absconsion

Four scales were employed in assessing absconders in some of the included studies, although recommendation regarding their clinical utility was limited due to mixed findings. For instance, the MMPI Bell-Panton escape index[14,31] did not differentiate absconders from nonabsconders, however several of its clinical and validity scales, including Infrequency (F), Psychopathic Deviate (PD), Psychasthenia (PT), Schizophrenia (SC), Hypomania (MA), and Lie (L) showed significant differences between absconders vs nonabsconders when considered separately.[31]

Cooke et al[14] also reported that MMPI-Es was able to predict absconders correctly in only 68% and yielded 35% false-positive rate. In a similar trend, some studies reported the relatedness of the risk of absconsion with HCR-20 and PCL-R scores.[22,38,45,48] Interestingly, all these scales are generic tools used for assessment in psychiatry, thereby suggesting the potential benefits and broad clinical application of scales that allow multidimensional assessment of multiple risk and problematic behaviors, including violence, absconsion, reoffending, and other associated problematic behaviors in forensic patients.[60] In this regard, the Short-Term Assessment of Risk and Treatability scale was designed to allow the assessment of multiple risk factors, including violence to others, self-harm, suicide, substance abuse, victimization, unauthorized leave, and self-neglect.[61] Additionally, there is an ongoing effort to develop tools (eg, Leave/abscond risk assessment,[62] Booth elopement assessment tool,[63] and Hamilton anatomy of risk management[64]) to improve the assessment, documentation, and management of absconsion.[17,61–64]

Factors associated with absconsion

Several characteristics of absconders were described across the included studies, however, only previous absconsion,[3,41] verbal aggression,[3] active psychiatric symptoms,[37] recent in-patient substance use,[3,41] dynamic anti-sociality,[37] comorbidity of substance use,[45] poor treatment compliance,[37] sexual offending,[3] and a higher HCR-20 score[37,45] were identified as factors with a higher likelihood (a degree of predictive value) for absconsion. Emphasis was also given to factors that were proximal to the absconsion events, especially acting out behaviors,[29] and patients' motivation for absconding.[28] Further, several factors including, impulsivity,[15,34,35,38] violence,[22,45] treatment nonadherence,[22,37,41] staff-patient ratio,[35,42] and relational safety remain critical risk factors for absconsion despite the lack of statistical information on their predictive value. Appropriate management of patients during the immediate period around an absconsion event is very important to mitigate any contagion effects of absconsion or group absconsion that may result in "copycat absconsion," where other patients copy maladaptive behavior of an absconder.[26,34,36]

Overall, the quality of evidence for a model with a good prediction of absconsion is currently limited due to poor construct fidelity, methodological/ethical constraints of performing clinical trials with absconsion as the a priori endpoint, and high false-positive bias, although a false positive bias is common with rare events in general.[14,65] For instance, as much as 29% false-positive rates were reported in studies that were included in this review,[14,26,29] and Morrow[26] observed only 61% accurate prediction of high risk of absconsion in patients before the incident of unauthorized leave. The prediction of absconsion remains a critical issue yet to be addressed sufficiently in both the clinical and research arena. In this respect, exploring the role of structural professional judgement tools in absconsion risk management is gaining traction, although the dynamic nature of risk associated behaviors and scenarios of absconsion are major challenges.[17,62,63]

Complications and negative outcome of absconsion

Several serious negative incidents (including violence, crimes suicide/self-harm,[34,46,48] arm robbery,[33,46] theft,[15,34] among others) were reported during the period of unauthorized leave among patients. It is also very likely that patient's mental wellbeing would be compromised with prolonged treatment disruption, and absence from a therapeutic milieu. However, the rates of recidivism (rate as much as 0.11) were generally low.[22] That said, any incident of absconsion remains significant given the potential increase in the risk of serious or lethal outcome when a patient absconds from psychiatric services.

Study limitations and quality assessment

Several study limitations were identified in this review and with the quality assessment of the individual study included in the review. For example, the construct of absconsion was not consistent across all the included studies, rigorous statistical analysis to explore predictive factors was limited and no sample size or power calculation was conducted in the included studies. The problem of duplicate counting of absconsion events from the same patient was not adequately addressed in few of the included studies. Majority of the included studies employed retrospective study design, and an interventional clinical trial was limited. These limitations are important areas that should be addressed in future empirical studies.

Conclusion

Considering the findings in this review, several lessons for clinical and research practice are implied. The lack of consensus on the definition of absconsion and absence of a clear-cut protocol to standardize the assessment and documentation of absconsion events/behaviors are critical issues to be addressed to improve clinical management and promote well-designed future research.

The development of a structured protocol for absconsion can facilitate better reporting, informed clinical decision, transparency, and standardized assessment as well as documentation. The use of standardized or structured protocol can yield more defensible information and limit liability in case of any legal issues arising from an absconsion. Again, a standardized protocol can enhance the application of current technological advancements (viz: machine learning, data mining, and artificial intelligence, etc.) to deliver comprehensive assessment and analysis of absconsion risk scenarios to make a better clinical decision. A structured description of the essential elements of absconsion risk scenario in terms of likelihood, imminence, frequency, and magnitude (what will happen) is necessary to allow analytical risk evaluation and informative communication with relevant authorities.

While the development of structured tools and statistical prediction model for absconsion should be promoted, evidence for the multidimensional assessment of multiple risk factors is increasingly becoming apparent for further exploration. In terms of future research, pooled analysis may become possible with a clearer definition of absconsion-related events/behaviors, improved construct, and an increasing number of studies adopting comparable research protocol. Future research should also explore any potential benefits of idiographic assessments to promote personalized assessment.

In sum, every incident of absconsion involving forensic patients constitutes a major public safety and patient care issues. There is a need for consensus on the definition of absconsion to standardize assessment and documentation, improve evidence-based management, and promote cutting-edge future research. Furthermore, it is necessary to develop a structured guideline for defining absconsion, and a protocol that operationalizes all absconsion-related behaviors/events to promote reliable assessment, and evidence-informed management.

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