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# Toward a Risk Management Strategy: A Narrative Review of Methods for Translation of Risk Assessment into Risk Management

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## ABSTRACT

In forensic mental health care, a risk management plan forms the transition between the assessment and the treatment phase. Research and practice have shown that clinicians often experience difficulties in the transition from assessment to risk management. Available methods often do not provide sufficient guidelines. The current narrative review aimed to provide an overview of available methods for the translation of the risk assessment information into a risk management plan and to evaluate these methods. A literature search led to the identification of 21 methods, of which only two provided concrete guidelines for all of the steps of the pathway from risk assessment to management. Results underline the importance of providing clinicians with structured methods to guide the risk management pathway.

## KEYWORDS

Risk management; risk assessment; forensic mental health care; forensic psychiatry

## Introduction

In both forensic and general mental health care, a treatment or case management plan forms the transition between the assessment/diagnostic phase and the treatment phase. The starting point of developing a treatment plan in general mental health care commonly are the patient's complaints and problems, the factors that are hypothesized to have caused and maintained these problems, and the specific interventions that are expected to decrease the patient's problems (Korrelboom & Ten Broeke, 2014). Treatment plans ensure that the therapist and patient have a clear understanding of the short-term and long-term goals and that both are working toward the same goals. Hence, treatment plans form an essential element of mental health care. In addition, by involving the patient in the process and by formalizing the agreements, the commitment of the patient can be optimized.

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Since the main aim of forensic mental health care is to reduce recidivism, treatment plans should therefore include elements to reduce the risk of recidivism. A risk management plan is a part of the treatment plan and describes the systematic and organized actions in terms of treatment, monitoring, supervision, and victim safety (Hart et al., 2001; Kropp et al., 2002; Ryan, 1999). To guide the formulation and execution of these risk management plans, offense-related behavioral treatment models are mainly used rather than psychopathology-based models (McCormick et al., 2015).

The most widely used forensic model is the Risk Need Responsivity Model, and its empirical validity has been well-studied (RNR; (Bonta & Andrews, 2017; Polaschek, 2012). The RNR-model is a risk-based model in which risk factors (assessed with risk assessment instruments) related to offense behavior form the focus of offender rehabilitation, and therefore, it can be seen as a risk management approach (Willis & Ward, 2010).

Merely identifying risk and/or protective factors and forming a theory about their interdependence does not decrease recidivism if the professional does not act on this information. Therefore, a translation into a risk management plan should be made. This process from assessment to management has been called the “Risk Assessment and Management Pathway” (RAMP; Viljoen & Vincent, 2020). Various authors (e.g., Douglas et al., 2013; Doyle & Duffy, 2006) have described this pathway in several phases, which generally come down to three steps. First, risk- and protective factors should be identified using a risk assessment instrument (step 1: “identification”). Second, the clinician forms a hypothesis or theory about the relations between these factors and their relationship with offense behavior, also referred to as case formulation or case conceptualization (step 2: “construction of theory”). At the same time, the patient’s risk level and relevant responsivity characteristics should be described. Third, a risk management plan or strategy should be formulated (step 3: “risk management”) in which the RNR-principles are incorporated. Since these steps are outlined in several methods and no overarching framework is available yet to guide the formulation of a risk management plan, the current review focuses on identifying and describing the methods available in the literature for the above-described steps. In other words, the formulation of a risk management plan relies on information from assessments, conceptualizations, and theories.

Clinical practice and previous research indicate that clinicians often experience difficulties in translating risk assessment outcomes into a risk management plan (Bouman et al., 2020; Singh et al., 2014). Risk assessment instruments focus on the assessment part of the pathway and do

not provide instructions on what interventions to provide and how to deliver them (Bosker, 2015; Viljoen & Vincent, 2020), which may lead to non-optimal reductions in recidivism rates (DeMatteo et al., 2010).

The difficulties in this translation became clear in several studies. For instance, Viljoen et al. (2018) reviewed studies evaluating the translation of risk assessment into risk management plans and concluded that there was often a weak link between the assessment and risk management plan. Firstly, in 22 of the 34 studies addressing adherence to the risk principle, the match was moderate, and in 5 studies, this match was high. “Match” was operationalized by analyzing the association between risk level and decisions about placement, sentencing, supervision, and intensity of services. Secondly, adherence to the need principle was found to be limited. In nearly half (7 out of 16) of the studies, less than half of the needs were addressed in the risk management plan, and in the remaining 9 studies, moderate adherence to the need principle was found (i.e., slightly more than half of needs were addressed). This was also found in the study by Singh et al. (2014): vulnerabilities that were identified as important were only addressed in management plans about half of the time and strengths only in a quarter of cases. Peterson-Badali et al. (2015) described this low to moderate adherence to the risk and need principles as “slippage” in the pathway of matching interventions to offender’s risk level, needs, and responsivity aspects. In addition, Levin et al. (2019) found that most executed risk management interventions were not planned beforehand, suggesting that clinicians – during treatment – make subjective decisions about their risk management strategies. Hence, these experiences and studies suggest the need of strengthening the link between risk assessment and risk management. This can be achieved by, for example, providing standardized and structured guidelines on how to incorporate the RNR-principles in risk management plans (Hanson et al., 2009).

Taken together, previous studies have identified a gap in the risk management pathway. So far, several methods, tools, instruments and guidelines (from now on referred to as methods) have been developed to facilitate the process of formulating a risk management plan. In the current review, we aimed to provide an overview of these methods that could provide guidance in the risk management pathway. In addition, these methods were evaluated based on whether they provided guidelines for the different steps of the pathway.

As stated before, RNR is the most leading model in forensic care, and so far, most studies on the topic of risk management have taken an RNR-based approach (e.g., Viljoen et al., 2018). In contrast, the current review takes a broad approach by including all methods that aid structuring the pathway of formation of a risk management plan.

## **Aims and objectives**

To summarize, the aims of the current study are twofold:

- (1) To provide an overview of methods that are available in the literature for identification (step 1), construction of theory (step 2), and risk management (step 3). As we aimed to review studies that guide the risk management pathway, we do not include methods that only provide guidelines for step 1. In other words, only methods that go beyond identification were included.
- (2) To evaluate whether the methods contain useful and concrete guidelines for the steps of the pathway. For each step, it was evaluated whether the methods provide (structured) guidelines.

## **Methodology**

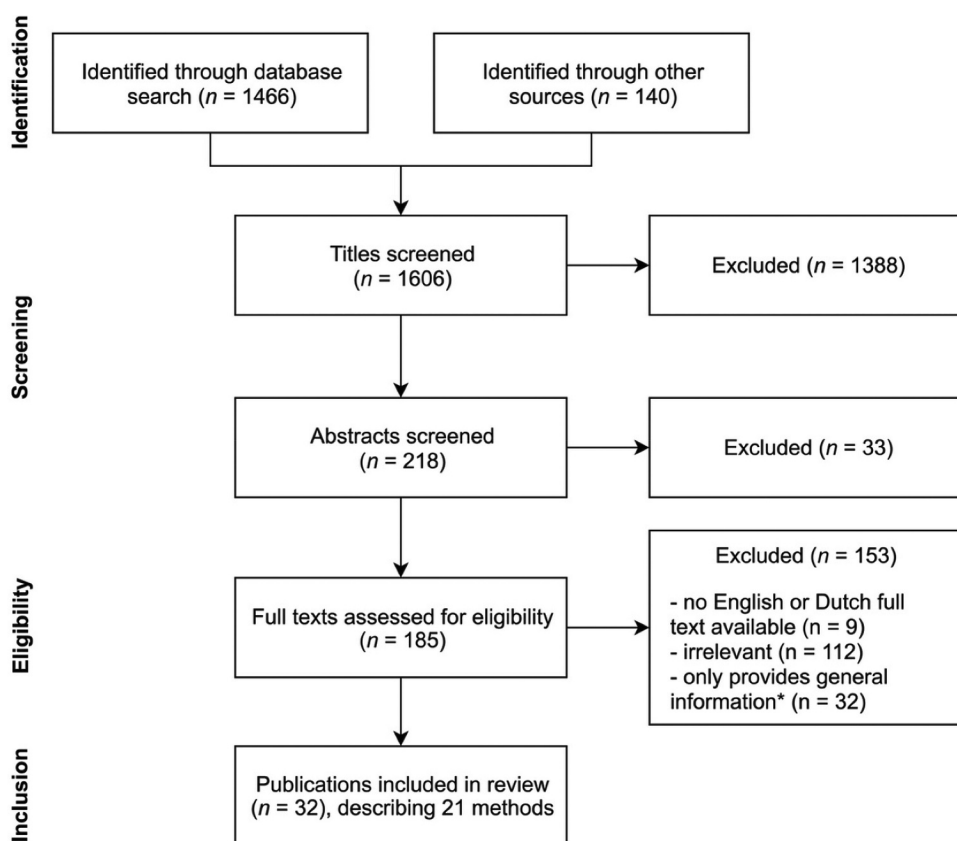
### **Search strategy**

The narrative literature review was conducted following the guidelines by Green et al. (2006). Web of Science, Google Scholar, and CataloguePlus were searched until December 2019. Only publications written in English or Dutch were included. No restrictions were applied regarding the year of publication as older risk management methods or guidelines can be used and could therefore be useful for the review as well. A combination of search terms was used, pertaining to a) risk assessment, b) risk management, c) a forensic population, and d) a treatment/supervision setting. In addition, the reference lists of included publications were searched manually for additional publications (e.g., worksheets and other resources). In total, 1606 potentially relevant publications were screened for eligibility.

### **Data collection**

The assessment of eligibility was done in three stages (see Figure 1). First, the first author screened the titles of 1606 publications to determine if they met the inclusion criteria. The article had to describe a method, tool, or guideline to structure the pathway of formulating a risk management plan to be included. In this round, 1388 publications were excluded. Second, the remaining 218 abstracts were screened for eligibility.

To ensure consistency in the selection across researchers, Cohen's  $\kappa$  was calculated (Landis & Koch, 1977). The first 50 abstracts were screened for eligibility by the first, second and the last author. There was substantial agreement between the raters,  $\kappa = .756$  ( $p < .001$ , 95% CI = .574 – .938). The six abstracts where the evaluations differed were discussed until consensus was reached. Then, the first author completed the selection of the remaining 168 publications. A total



**Figure 1.** Search strategy and phases of review. \* Articles not included in the ratings of the methods but used to describe the methods.

of 185 full texts were studied to ensure eligibility, which led to the exclusion of 147 publications. Nine of these full texts were not available in English or Dutch, 32 only provided background knowledge on a method (and did not describe the method itself) and 112 were considered irrelevant (e.g., they only addressed the necessity for risk management guidelines, but did not describe aspects of it or *how* to do this). In the case that a group of authors developed instruments for different groups with the same theoretical basis (e.g., the LS/CMI vs. the YLS/CMI), we only included one of them (in this case, the adult version). After exclusion, 32 relevant publications were identified describing 21 methods that provide guidelines for the formation of risk management plans.

### Data analysis

The included publications were studied in more detail in two phases. Based on the dominant theoretical background used therein, the methods were organized into four main categories: 1) RNR-based methods, 2)

methods based on the Good Lives Model (GLM), 3) methods related to or based on Cognitive-Behavioral Therapy elements (CBT-based methods), and 4) methods that combine elements of previous categories (combined methods). These categories are described in more detail in the results section.

In the second phase, independent rater couples (first, second, and last author and a student) rated each method identified as being part of one of the steps of the risk management pathway: (1) identification, (2) construction of theory, or one of the four sub steps of the risk management category, (3a) match risk level to the dosage of treatment, (3b) identification of relevant factors that need to be targeted in treatment, (3c) prioritizing these treatment goals, and (3d) matching treatment with the patient's learning styles, motivation, etc. (Bonta & Andrews, 2017). The following guidelines were applied: a plus (+) rating was applicable when the manual, guideline or description of the methods provided clear guidelines on how to perform a particular step. A plus/minus ( $\pm$ ) was applicable when the method described the step in the method section of the publication without detailing *how* to perform that step or when the step was either discussed or mentioned in the manual. A minus (-) was applicable when the step was not outlined in the method.

Interrater Class Correlation (ICC) coefficients were calculated to establish the agreement between raters. The guidelines of Koo and Li (2016) were used to interpret the ICC-values:  $ICC < .50$  poor agreement;  $.50 \leq ICC < .75$  moderate agreement;  $.75 \leq ICC < .90$  good agreement,  $ICC \geq .90$  excellent agreement. The interrater reliability coefficients per step were: step 1  $ICC = .570$ , step 2  $ICC = .531$ , step 3a  $ICC = .550$ , step 3b  $ICC = .274$ , step 3c  $ICC = .447$ , step 3d  $ICC = .486$ . Because of these poor to moderate interrater agreements, for each step that was not agreed upon by the raters, the method was reexamined and discussed to reach a consensus rating. During the reexamination, it became clear that differences in ratings were caused by not strictly adhering to the evaluation criteria, not reading thoroughly enough, or because a rater was familiar with the method and thereby filled in information that was not stated in the method itself. In addition, one disagreement results in a lower of ICC-value, as only a small number of methods has been assessed ( $N = 21$ ).

## Results

The literature search yielded 21 methods used to identify factors related to offense behavior (identification), describing the relationship between relevant factors at the patient's level (construction of theory), and translating the results of previous steps into a risk management plan (risk management).

The methods were first divided into four categories: RNR-based, GLM-based, CBT-based, or combined methods. [Table 1](#) displays an overview of the 21 methods and their characteristics (author(s), country, population, a short description). The sections below first provide a description of the four categories. Subsequently, the evaluations are presented (see also [Table 2](#)). First, the evaluations are discussed by category, and second, they are discussed by step.

## **Categorization**

### ***Category 1: RNR-based methods***

The methods described in this category are based on the RNR-principles (Bonta & Andrews, 2017). The RNR-model was conceived based on the General Personality and Cognitive Social Learning theory (GPCSL). The full model contains fifteen principles in total, of which the following three are most widely known. Firstly, the risk principle states that the intensity of the risk management should be matched to the patient's risk of recidivism, with higher-risk offenders receiving more intensive management. Secondly, the need principle prescribes that treatment should focus on dynamic (changeable) risk and/or protective factors that are related to criminal behavior (criminogenic needs). Lastly, the responsivity principle states that treatment should be tailored to the characteristics and motivation of the patient (specific responsivity) and should be cognitive-behavioral in nature (general responsivity).

Fourth generation risk assessment instruments are the most recent generation of instruments that focus on identifying the risk- and/or protective factors that increase or decrease, respectively, the risk of recidivism (Bonta & Andrews, 2017). These fourth-generation risk assessment instruments evolved from three prior generations of instruments. In first generation instruments, risk assessment procedures are unstructured, and the reliability of the assessment relied heavily on the expertise and experience of the clinician (clinical approaches). In the second generation of risk assessment instruments, the scoring of the – mostly static – risk factors is guided by manuals and the assessment of the recidivism risk is based on an actuarial method emphasized (actuarial approaches). The third-generation risk assessment instruments consisted of static and dynamic risk factors of which the scoring was structurally guided by a scoring manual. However, the assessment of the recidivism risk is based on a clinical judgment (Structured Professional judgment; SPJ; Grove et al., 2000; Hart et al., 2016). Fourth-generation instruments are an extended version of third generation instruments in a sense that they include additional guidelines for case planning (Campbell et al., 2009). With the development of fourth-generation risk assessment, the instruments support the clinical process are more in line with clinical practice by providing clinicians with practical guidelines for treatment planning.



**Table 1.** Characteristics and description of the 21 methods.

Method	Authors, country	Population	Description
RNR-based: RiskAssessmentinstruments HCR-20 <sup>3</sup> + worksheet	Douglas et al. (2013) Hart (2010) Logan (2014) CA	Adult offenders	The Historical Clinical Risk-management (HCR-20) is an SPI-based violence risk assessment instrument. The third version focuses on linking the assessment to a risk management plan using risk formulation. It includes five risk management items and provides structure to generate a risk formulation. In addition, a worksheet was developed that can be used together with the HCR-20 <sup>3</sup> to structure the translation from risk assessment into risk management. In this worksheet, risk factors need to be scored along two dimensions: presence and relevance. Next, the relationship between risk factors is described (aspects such as causal relations, prioritizing of the factors, inhibitory factors, and protective factors). Then, different risk scenarios need to be described, along with several characteristics (type of offenses, consequences, timing, frequency, and probability). Subsequently, a risk management plan is formulated for each scenario, describing four aspects: supervision, treatment, restrictions, and victim safety. The worksheet ends with additional questions about the priority and acuteness of the case. No responsibility aspects are taken into account in the worksheet itself.
HKT-R	Spreen et al. (2013) NL	Adult violent forensic patients in clinical settings	The HKT-R (Historical Clinical Future – Revised) is a structured professional judgment tool for assessing the risk of violent recidivism. It consists of historical (entire life history), clinical (past 12 months) and future items. It provides the option to rank dynamic risk factors by severity concerning the antisocial behavior and risk management (the Position in Risk Management; PRM).
IFTE	Dr. S. van Mesdag (2015) Schuringa et al. (2016)) NL	Forensic psychiatric patients	The Instrument for Forensic Treatment Evaluation (IFTE) is a forensic ROM tool. The IFTE consists of 22 items, divided into three factors; protective behavior, problem behavior, and resocialization skills. Offense related items and current treatment goals can be highlighted within the IFTE report, making it possible to evaluate relevant items. However, guidelines on how to choose offense related factors and treatment goals are not described. The IFTE report displays the development of the 22 items on factor level and item level over time (Van der Veeken, 2019). The evaluation is meant to support professionals in decision making.
LS/CMI	Andrews et al. (2004) CA	Late adolescent and adult offenders	The Level of Service/Case Management Inventory (LS/CMI) is based on the RNR model and consists of 11 sections. Sections 1 and 2 focus on identifying risk-factors and criminogenic needs. Responsibility factors are gathered in section 5. In sections 6 and 7, these risk factors are translated into risk levels, and into domain scores. These are subsequently translated into placement advice (section 8) and treatment goals and priorities (section 9). As such, Section 9 of the LS/CMI provides guidelines for the professional to formulate a case management plan. The level of service (in terms of frequency of assessments and intensity of supervision) needs to be specified (matched with the risk assessment). Subsequently, the criminogenic needs are to be prioritized, and goals and interventions need to be specified based on this prioritization. Lastly, responsibility issues are addressed. There is a youth version available (Hoge & Andrews, 2011).

(Continued)



Table 1. (Continued).

Method	Authors, country	Population	Description
RISc3	Bosker (2015) Bosker and Witteman (2016) NL	Adult offenders in probation or prison	The Risk Assessment Scales (RISc3) includes a computer-based decision support tool consisting of three steps. First, the results of the risk-need assessment are displayed, and the clinician needs to prioritize the criminogenic needs based on the assessment and their view on the interdependence of the needs and the problematic behavior. Second, a form is displayed in which goals and interventions can be described for each criminogenic need. The tool provides suggestions for interventions based on certain inclusion criteria. In the third step, the clinician must describe the sanction, special conditions, and electronic control measures (if relevant). In addition, the clinician has to choose between three levels of supervision. The tool provides a suggestion for type of supervision based on the risk assessment, but this suggestion can be overruled by the clinician.
SAVRY + ARROW	ARROW manual: Viljoen et al. (2014) ARROW evaluation: Viljoen et al. (2019) CA	Young violent offenders	The Structured Assessment for Violence Risk in Youth (SAVRY; Bartel et al., 2002) includes 10 historical and 14 dynamic risk factors and six protective factors. Viljoen et al. (2019) described a structured case management planning form, which was later transformed into a computerized planning tool: the Adolescent Risk Reduction and Resilient Outcomes Work-Plan. Professionals select risk- and protective factors to include in their plan and the ARROW provides suggestions for interventions. Clinicians are instructed to select the "critical" (i.e., strong link with recidivism) risk factors and at least one protective factor. Then clinicians must formulate a goal, a planned intervention, and a target date for each factor.
SSA	Fernandez et al. (2012) Hanson and Harris (2012) Harris et al. (2013) CA	Adult sexual offenders	The Static Stable Acute (SSA) is a combination of static and dynamic tools to estimate the risk of recidivism (sexual and violent) among sexual offenders. It consists of the Static-99 R, the Stable-2007, and the Acute-2007. The combination of these tools can be used to make decisions regarding treatment allocation, the intensity of supervision, and type of guidance needed during reintegration. The SSA also provides information on acute risk factors, that is factors that can change quickly and have been linked to recidivism.
START	Viljoen et al. (2014) Webster et al. (2004) CA	Adult offenders	The Short-Term Assessment of Risk and Treatability (START) is a short-term (three month) risk assessment instrument that identifies risk and protective factors. By regularly re-assessing, it helps tracking risk- and protective factors and, if necessary, changing the risk management strategy. An adolescent version was developed as well (START-AV; Viljoen, Nicholls, et al., 2014).

(Continued)

Table 1. (Continued).

Method	Authors, country	Population	Description
<b>RNR-based: other</b>			
CAIS	Karls et al. (2018) Ore and Baird (2014) USA	Adult offenders	The Correctional Assessment and Intervention System (CAIS) is a structured interview that is entered into a web-based system. Eleven of these questions are used to predict the likelihood of recidivism within 24 months. The system provides an actuarial risk level in the report (low, moderate or, high). Next, there are twelve Needs-related questions. This system provides a report including the patient's actuarial risk level, supervision strategies, case planning recommendations, and the criminogenic needs that should be addressed. More specifically, the system categorizes offenders into four supervision groups (selective intervention, casework/control, environmental structure, and limit setting). In addition, the case plan can be used to monitor the offender's progress. The youth-version (Juvenile Assessment and Intervention System; JAIS) is also available.
FRAME	Carroll (2008) AU	Adult offenders	The Forensic Risk Assessment and Management Exercise (FRAME) is a method that incorporates two SPJ tools (HCR-20 <sup>92</sup> and the START) and integrates them into case management.
IVRAM	Kivisto (2016) USA	All types of offenders	The Integrative Outpatient Violence Risk Assessment and Management Model (IVRAM) is a five-step strategy for evaluating and managing violence risk. The five steps are: 1) monitor all cases for potential risk management needs, 2) assessment of risk- and protective factors using SPJ, 3-4) analysis of patterned dynamic risk- and protective factors, and 5) identify treatment targets.
OIA	Brown and Motiuk (2005) Motiuk (1997) CA	Adult offenders	Part of the Offender Intake Assessment (OIA) is the Dynamic Factors Identification and Analysis (DFIA), which identifies and prioritizes factors that are linked to the patient's criminal behavior. DFIA helps to categorize offenders into five groups characterized by risk level, needs, offense pattern, and interaction style, and therewith, it helps to shape the risk management. In 2009, a revised version was implemented in which responsiveness received a more important role (Correctional Service of Canada, 2012).
RM-ID	Nijman et al. (2017) NL	Offenders with intellectual disabilities	Risk Management for people with Intellectual Disabilities (RM-ID) is an eight-step procedure. This procedure uses two assessment instruments specifically aiming at core characteristics (responsivity aspects) of people with intellectual disabilities. The eight steps are as follows: 1) assess intellectual disabilities; 2) describe items/domains on which patient functions the worst; 3) describe items/domains that could not be scored yet; 4) compare risk assessment scores of the patient to norm group; 5) assess emotional development; 6) prioritize emotional development; 7) responsivity aspects; 8) integration of assessments. This procedure guides the professional through all three steps of the process: identification, construction of theory, and risk management.

(Continued)



Table 1. (Continued).

Method	Authors, country	Population	Description
TNPS	Kang et al. (2019) USA	Juvenile sex offenders	The Treatment Needs and Progress Scale (TNPS) is an assessment protocol that focuses on relevant dynamic risk factors to inform risk management interventions. The item ratings correspond to the recommended treatment dosage (intensity of intervention; no need, possible/minimal need, moderate need, or strong need). Hence, it helps adherence to the need principle by identifying relevant treatment targets. Lastly, adherence to the Responsibility principle is guided by identifying factors that may influence the person's response to intervention.
<b>GLM-based methods</b>			
My PLP	Van Den Berg et al. (2015) NL	All types of offenders	My Positive Live Plan (PLP) allows the patient, together with his group and therapist, to examine ways to realize his primary goods in a socially acceptable way. The patient is also assisted in controlling his antisocial tendencies and other dynamic risk factors. The goals of the program are fourfold: 1) identifying factors that influence the origins and maintenance of antisocial behavior, 2) identify dynamic risk factors during the offense(s), and the ones that are still present, 3) enlarge and maintain treatment motivation, and 4) formulate and carry out concrete action plans, aimed at building a positive, offense-free future.
Six-phase treatment planning	Ward et al. (2007) AU	All types of offenders	The six phases are: 1) detecting criminogenic needs, 2) identifying the primary goods that the patient would acquire through delinquent behavior, 3) identification of the offender's strengths, experiences, and expertise (these become the primary focus of the treatment plan), 4) specification of how the identified primary goods can be translated into behavior, 5) investigation of the context and environment the patient will end up after the intervention, and 6) developing a good lives treatment plan using the information of phases 1–5.
<b>CBT-based methods</b>			
Analysis of meaning	Korrelboom and Ten Broeke (2014) NL	Patients with mental health problems	Analysis of meaning stems from the classical conditioning paradigm. It indicates how the perception of a certain situation or event activates knowledge about other events/situations in such a way that this activated knowledge leads to an emotional reaction that does not fit into the original situation. Thus, analysis of meaning sheds light on the assumed associations that evoke dysfunctional emotions. Risk management strategies can be derived from an analysis of meaning in several ways: 1) the patient could learn to avoid or reevaluate the situation or event, 2) the representation of meaning can be changed by reevaluating the relationship through exposure or counterconditioning, 3) learning to control conditioned emotional responses, for example, by time out procedures, relaxation exercises, or medication.

(Continued)

Table 1. (Continued).

Method	Authors, country	Population	Description
Functional analysis	Korrelboom and Ten Broeke (2014) NL	Patients with mental health problems	Functional analyses are used to better understand and ultimately, change behavior. It is based on the assumption that behavior is influenced by the patient's environment. A functional analysis is a hypothesized relationship between dysfunctional behavior and its consequences and is based on operant conditioning. Functional analysis provides input for the risk management plan in several ways: 1) if feasible, trying to avoid the situation or context in which the behavior occurs; 2) enlarge and/or focus on the negative consequences of the behavior; 3) decrease, falsify and/or ignore the positive consequences of the behavior. In addition, treatment should focus on the difference between the (often) long-term negative consequences in contrast to the possible short-term positive consequences.
<b>Combined methods</b>			
5 P's	Macneil et al. (2012) AU	General mental health population and adopted for offenders	The most common method of case formulation is the five P's-method: Presenting problem, Predisposing factors, Precipitating factors, Perpetuating factors, and Protective/Positive factors. The five P's-method is useful for forensic mental health care as it helps organizing risk relevant information from the assessment (Douglas et al., 2013; Joseph & Bensfield, 2012; Thakker, 2017). Connell (2015)described the advantages of using case formulation in forensic settings. Firstly, it integrates all the information into a coherent formulation. In addition, case formulation helps to select treatment targets that can reduce recidivism. Thirdly, identification of contextual factors enables management of this context to reduce risk. By changing or avoiding these contextual factors, the risk of recidivism can be decreased.
CAFIRA	Craig & Rettenberger (2018) Craig et al. (2020) UK, GE	All types of offenders	The Case Formulation Incorporating Risk Assessment (CAFIRA) is a method in which actuarial and clinical risk assessment measures (including protective factors) can be integrated into case formulation. This provides a link between the etiological development of the problematic behaviors and the risk management of (sexual) offenders. It creates a framework for repeatedly testing and changing hypotheses during the treatment process. The CAFIRA model includes the five P's, risk assessment outcomes, important theories and concepts, and neurobiological influences.

(Continued)

**Table 1.** (Continued).

Method	Authors, country	Population	Description
Offense analysis	Vrinten et al. (2015) NL	All types of offenders	Offense analysis is a structured analysis of the circumstances, behaviors, and events that lead to the offense. Although the method contains elements from other methods such as the RNR-model and CBT, its primary goal is to develop a theory of offense behavior at an individual level, which aligns with the central aim of an N = 1 method. Offense analysis has been described by Vrinten et al. (2015) as a 6-step process. After studying the patient's file (step 1) the offense analyst explains the goals and methods of the offense analysis to the patient, to establish a working alliance (step 2). Then, a detailed description of the startup and the circumstances of the offense, in terms of feelings, thoughts, and actions, from 12 or 24 hours before the offense (the "offense scenario"; step 3). Next, different (problematic) behaviors of the patient are explained using functional analysis and analysis of meaning (step 4). Fifth, other offenses are analyzed to identify patterns. Lastly, a (holistic) offense theory is formulated, including the different factors that contributed to the development and maintenance of antisocial behaviors, presented in a report. Offense analysis should lead to clearer treatment goals, which in turn creates an opportunity to objectively monitor change and risk levels.

Overall, the first three generations of risk assessment instruments aided the professional in identifying the presence of risk and/or protective factors (step 1) but did not provide explicit guidelines for further steps. Notwithstanding, although prediction may be the primary goal of risk assessment, it should also serve clinical and management purposes (Heilbrun, 1997; Moran et al., 2001). For this study, only the fourth-generation instruments were relevant since they can be integrated into risk management, help with the selection of interventions, and/or help to monitor rehabilitation progress (Andrews et al., 2006; Cuadra et al., 2010).

### ***Category 2: GLM-based methods***

The GLM (Ward, 2002; Ward & Gannon, 2006; Ward & Stewart, 2003) is a strength-based treatment framework and focuses on aspects of well-being and the capacities of the offender. According to the GLM, individuals are goal-oriented beings who want to acquire fundamental primary goods (i.e., activities, experiences, or situations that promote the well-being of the individual; Ward & Gannon, 2006; Ward & Stewart, 2003). In short, the basic assumption of the GLM implies that offenders are either searching for primary goods through criminal behavior or have committed a crime as indirect consequences of pursuing those primary goods (Braet, 2008; Whitehead et al., 2007). Criminogenic needs are seen as a reflection of the problems that thwart individuals in acquiring their primary goods in an acceptable manner (Braet, 2008). The primary aim of GLM is to support the patient in skill development, experience, and knowledge to achieve primary goods in a prosocial manner.

### ***Category 3: CBT-based methods***

Two methods described in Table 1 are based on or consist of elements of CBT. CBT is based on two premises: 1) our cognitions influence our behavior and emotions, 2) our behavior can affect our emotions and thought patterns (Beck & Rush, 1979). While CBT was not developed specifically for the forensic population, (elements of) CBT is incorporated in most of the interventions offered in forensic mental health centers and is integrated in the RNR-model as well (Bonta & Andrews, 2017). The literature search yielded two CBT-based methods that provide guidelines for the risk management pathway: analysis of meaning and the functional analysis (see Table 1).

### ***Category 4: combined methods***

Combined methods use a combination of elements from RNR, GLM and CBT. For example, Offense Analysis included elements of CBT, and the CAFIRA includes risk assessment and the 5P's.



**Table 2.** Consensus ratings of the methods distinguished by steps for identification, construction of theory, and/or risk management.

	Step 1: Identification		Step 2: Construction of Theory		Step 3: Risk Management		
	1. of risk-related factors	2. about the interdependence of risk related factors	3a. match risk level to treatment dosage	3b. identification of relevant risk related factors that need to be targeted in treatment	3 c. prioritization of treatment goals: where to start?	3d. address responsiveness factors	
RNR-based: 4 <sup>th</sup> generation							
RA instruments							
HCR-20 <sup>V3</sup>	+	+	+/-	+/-	+/-	+/-	+/-
+ worksheet							
HKT-R	+	-	-	+/-	+/-	-	-
IFTE	+	-	-	+/-	+/-	-	-
LS/CMI	+	+	+	+/-	+	+	+
RISc3	+	+	+	+	+	+	+
SAVRY + ARROW	+	+	+/-	+	+	+	+
SSA	+	-	+/-	+	-	-	-
START	+	-	-	+	+/-	+/-	-
RNR-based: other							
CAIS	+	+	+	+	+	+	+
FRAME	+	+	+	+	+	+	+/-
IVRAM	+/-	-	-	+/-	+/-	-	-
OIA	+/-	-	+/-	+/-	+/-	+/-	+/-
RM-ID	+/-	+/-	+/-	+/-	+/-	+/-	+/-
TNPS	+/-	+/-	+	+	+/-	+	+
GLM-based methods							
My PLP	+/-	+/-	-	+/-	-	+/-	+/-
Six-phase treatment planning	+	+	-	+/-	+/-	-	+/-
CBT-based methods							
Analysis of meaning	-	+/-	-	+/-	-	-	-
Functional analysis	-	+/-	-	+/-	-	-	-
Combined methods							
5 P's	+	+	-	+/-	-	+/-	+/-
CAFIRA	+/-	+	+/-	+/-	+/-	+/-	+/-
Offense analysis	+	+/-	-	+/-	+/-	+/-	+/-

RNR = Risk-Need-Responsivity Model; RA = Risk Assessment; HCR-20<sup>V3</sup> = Historical Clinical Risk-Management; HKT-R = Historical Clinical Future-Revised; IFTE = Instrument for Forensic Treatment Evaluation; LS/CMI = Level of Service/Case Management Inventory; RISc3 = Risk Assessment Scales; SAVRY = Structured Assessment of Violence in Youth; ARROW = Adolescent Risk Reduction and Resilient Outcomes Workplan; SSA = Static/Stable/Acute; START = Short Term Assessment of Risk and Treatability; CAIS = Correctional Assessment and Intervention System; FRAME = Forensic Risk Assessment and Management Exercise; IVRAM = Integrative Outpatient Violence Risk Assessment and Management Model; OIA = Offender Intake Assessment; RM-ID = Risk Management for people with Intellectual Disabilities; TNPS = Treatment Needs & Progress Scale; GLM = Good Lives Model; My PLP = My Positive Life Plan; CBT = Cognitive-Behavioral Therapy; CAFIRA = Case Formulation Incorporating Risk Assessment.



## Evaluation

In the next section, the methods are evaluated per category. The evaluations are illustrated with some examples.

### Category 1: RNR-based methods

In Table 1, eight fourth-generation risk assessment instruments are described. From Table 2, it becomes clear that all fourth-generation risk assessment instruments guide the step of identification (1), which comes as no surprise since they were developed for this purpose. Half of the instruments provide guidelines for the second step, i.e., the construction of theory. The RISC3 is the only risk assessment instrument that provides concrete guidelines for all steps of the pathway. For example, the RISC3 guides the probation officer in his decision regarding each criminogenic need on the necessity to intervene (on a four-point scale). This results in a prioritization of needs (step 3c). An example of a  $\pm$  evaluation is the HCR-20<sup>V3</sup> worksheet. On this worksheet, several questions are listed about risk management aspects (e.g., what treatment or rehabilitation is most suitable?). However, it does not provide specific/concrete suggestions or recommendations for treatments to match specific criminogenic factors. In addition, the HCR-20<sup>V3</sup> worksheet focuses briefly on responsivity aspects but leaves the interpretation to the clinician. Another example of a method that guides clinicians in step 3a is the LS/CMI. The LS/CMI manual provides a table of suggested supervision levels, matched to risk levels for prisoners and outpatient forensic patients.

### Other RNR-based methods

Most of these methods guide the steps to some extent ( $\pm$ ), however, only CAIS provides concrete guidelines for all the steps of the pathway. More specifically, CAIS divides offenders into strategy groups based on their risk level and needs, and then generates a report based on the offender's risk and needs, which includes gender-specific supervision strategies and programs (responsivity). For example, for the Environmental Structure group (i.e., lack of social and vocational skills, easily influenced by others, intellectual disabilities), it is recommended to avoid abstraction and generalization in therapy and counseling. Treatment should be focused on social skills, assertiveness, and the spending of (leisure) time should be planned (Ore & Baird, 2014).

Other methods in this category that address one or more steps are the following. The FRAME-method provides concrete guidelines for all steps except step 3d (addressing responsivity factors:  $\pm$ ). An example of a concrete guideline for step 3a can be found in the TNPS. Each factor is scored on a 0–3 scale which corresponds to recommended levels of treatment intensity. Both the OIA and the RM-ID have all  $\pm$  ratings. For example, one of the steps in the worksheet of the RM-ID is prioritizing domains such as aggression regulation, and moral development. However, no guidelines are provided on *how* to prioritize these domains.

### **Category 2: GLM-based methods**

From the ratings of the two GLM-based methods, it became clear that they do not provide detailed guidelines on how to progress from one step to the next in the risk management pathway. The six-phase treatment planning does provide guidelines for identification and construction of theory (step 1 and 2). Matching the treatment dosage (i.e., intensity and frequency; step 3a) to the risk level is not covered in both methods, which comes as no surprise since these methods are strength-based instead of risk-based. For example, my PLP helps the offender to identify relevant dynamic risk factors by providing an overview of examples (step 1) and categorizing them into risk factors that should be targeted in treatment or not. However, no concrete guidelines or where to base these decisions on are provided in the workbook. Overall, GLM-based methods provide some guidelines for the steps of the pathway, however, these are often insufficient.

### **Category 3: CBT-based methods**

As stated before, the two CBT-based techniques are not developed for the forensic field specifically, which is reflected in the evaluations. Only step 2 (construction of theory) and step 3b (identification of relevant risk-related factors that need to be targeted in treatment) are covered to some extent ( $\pm$ ). Overall, the CBT-based methods were evaluated as the least useful for the steps of the pathway, compared to the other three categories.

### **Category 4: combined methods**

From the evaluations of the combined methods, it becomes clear that these methods primarily focus on the first two steps of the pathway (identification and construction of theory). For example, CAFIRA is a model consisting of many elements (static, dynamic, and acute risk factors, protective factors, the five P's, etc.) and helps the clinician to construct a theory about the interdependence of all these factors. The three combined methods only provide global guidelines for the steps 3a-3d (risk management). For example, the offense analysis report prescribes that cognitive functions should be assessed as a responsivity factor but does not provide any concrete guidelines how to do this.

In the next section, the above-described results are summarized and evaluated per step of the pathway (identification, construction of theory, and risk management).

#### **Step 1: identification**

In total, 19 of the 21 methods (90.5%) can be used for identification of risk (and protective) factors (+/-), of which thirteen (61.9%) provide concrete, detailed guidelines (+). The evaluations of the methods presented in [Table 2](#) demonstrated that the fourth-generation risk assessment instruments are the most useful for the identification of risk related factors (step 1). The fourth-generation risk

assessment instruments were developed to enhance the translation from risk assessment to management and to increase clinical utility. These instruments include an additional guideline or worksheet that helps the assessor to translate the risk assessment into management strategies. Both CBT-based methods do not address this step (9.5%). Taken together, the step of identification has received much attention in the past decades and many instruments and methods exist to guide clinicians in identifying present risk- and protective factors.

### ***Step 2: construction of theory***

Nine out of 21 methods (42.9%) provide detailed (rated as +) guidelines for constructing a theory. The step construction of theory has received some attention in research: six (28.6%) methods provide at least some guidance ( $\pm$ ) in constructing a theory on the possible interdependence of the risk factors. However, the latter step does not receive any attention in six of the 21 methods (28.6%).

### ***Step 3a: match risk level to treatment dosage***

Five out of 21 methods (23.8%) provide detailed guidelines on how to match the treatment dosage (e.g., frequency, intensity, length) to the offender's risk level. This is in line with the Risk principle of the RNR model. From Table 2, it becomes clear that overall, the RNR-based methods all provide at least some guidelines for this step, as all are rated with  $\pm$  or +. However, most methods (six: 28.6%) only bring this aspect under attention but do not provide specific guidelines for matching treatment to the risk level (+/-). This step does not receive any attention in ten methods (47.6%).

### ***Step 3b: identification of relevant risk related factors***

All methods give at least some attention (+/- or +) to the identification of risk-related factors, of which seven (33.3%) provide concrete guidelines (+). These seven methods focus on the Need principle by guiding the professional in choosing treatment targets from the present risk (or protective) factors. After identifying the presence of risk factors, their relevance for treatment must be determined. And after determining treatment goals, the clinician must prioritize treatment goals.

### ***Step 3c: prioritization of treatment goals***

Five out of 21 methods (23.8%) structure the assessment procedure by including the option to mark risk factors as relevant for treatment, or by instructing the clinician to prioritize treatment goals (rated as +). Ten of the methods (47.6%) do not provide guidelines on *how* to pinpoint and/or prioritize treatment goals. This step does not receive any attention (-) in six methods (28.6%).

### **Step 3d: addressing responsivity factors**

Lastly, the Responsivity principle needs to be considered when formulating a risk-management plan, tailored to individual patients. Only five methods provided concrete guidelines for this aspect (+ rating, 23.8%), and it receives at least some attention in nine methods (42.9%). In seven methods, addressing responsivity aspects did not receive any attention (33.3%).

## **Discussion**

Risk management can be defined as the systematic and planned actions undertaken to reduce the risk of recidivism. Formulating a risk management plan is viewed as the necessary stepping stone from the assessment to the treatment phase (Ryan, 1999). Previous research has shown that clinicians often experience difficulties when translating findings from risk assessment and psychological assessment into a risk management plan (Singh et al., 2014; Viljoen et al., 2018). To facilitate the translation from risk assessment to risk management, methods have been developed which can help structure this decision-making process. As previous research has underlined the importance of decreasing the gap between assessment and risk management, the current review aimed to identify and evaluate methods that can be used for this purpose. A literature search yielded 21 methods that address the steps 1) identification, 2) construction of theory, 3a) matching risk level to dosage of treatment, 3b) identification of risk-relevant factors, 3c) prioritization of treatment goals, and/or 3d) addressing responsivity factors. More specifically, only methods that went beyond merely identifying risk- and protective factors have been included.

Step 1 (identification) was best-covered in the methods (thirteen +-ratings), followed by step 2 (construction of theory; nine +-ratings). Overall, the four substeps of risk management (step 3a-3d) were less represented in the methods than step 1 and 2. In particular, the steps that were rated lowest require more attention in order to provide practitioners with targeted tools for formulating a risk management plan. The steps that are covered the least in the methods are 3a (linking risk level to dosage of treatment), 3c (prioritization), and 3d (addressing responsivity). Every chain is as weak as its weakest link.

Risk assessment instruments in particular, but the other methods in this study as well, should be seen as an individual step that together can be used to formulate a risk management plan. Stated differently, each step provides information for the next one and together provide the necessary input to develop a comprehensive risk management plan (Viljoen & Vincent, 2020). Therefore, it is important for clinicians to be aware of this “slippage” and to provide them with methods that can aid in decreasing the gap between assessment and management.

In this review, we evaluated 21 methods that can be used for the translation of assessment into risk management. Only two methods covered all steps of the process (CAIS and RISC3), and therefore, it is advised to use a combination of methods that together, covers the whole pathway. For example, after using a risk assessment instrument, one can use offense analysis to prioritize treatment goals, and a GLM-based method to map responsivity factors.

### **Strengths**

To our knowledge, the current study is the first to review methods for formulating a risk management plan. In 2018, Viljoen et al. reviewed the use of risk assessment instruments for the translation of risk assessment into risk management. The current study took a broader approach by also including methods that are not based on risk assessment instruments, such as offense analysis. Another strength of the current study is that methods were evaluated by multiple assessors and that interrater reliability was calculated. Although the agreement was far from sufficient, this increases the reliability of the methods since a consensus score was used as a final assessment.

### **Limitations and suggestions for further development**

Results must be interpreted in the light of the study's limitations. In this study, methods were evaluated based on available manuals or guidelines. However, for some methods, the instrument itself was not available, for example, because it is a web-based program (e.g., the CAIS). Therefore, evaluations had to be done based on available publications on this method. As the program itself was not available to the authors, evaluations might not be all-encompassing. Furthermore, the methods have been evaluated based on the descriptives, i.e., more qualitative information. More quantitative information such as predictive validity, time burden for assessors have not been weighed in the evaluation. When deciding which method, or part of a method, should be preferred, those types of characteristics should be considered.

Future studies should address the question *how* we can evaluate whether the use of certain methods lead to better risk management plans, and, ultimately, to reduced recidivism. Most studies that already addressed the translation of assessment into management (e.g., Viljoen et al., 2018) did this by evaluating adherence to the RNR-principles, and more specifically, by focusing on the following questions: a) are high-risk offenders assigned to more intense/frequent services than low-risk offenders?; b) were the identified criminogenic needs addressed in the risk

management plan?; and c) were responsibility aspects addressed in the risk management plan? In these studies, mixed adherence to the RNR-principles in risk management plans was found, indicating the gap between assessment and management. An alternative method of evaluating risk management plans could be a quality rating scale, such as the Quality Checklist for Case Formulation (McMurrin & Bruford, 2016). Future studies should continue by investigating whether the risk management plans were executed as intended (treatment adherence), and whether this results in a reduction of recidivism. In addition, the focus in this review was on the development of a risk management plan and not on the entire process toward the actual risk management, which contains elements of monitoring, supervision, treatment and victim safety. Future studies should therefore address the period *after* the risk management plan by investigating adherence to the plans and the effects on recidivism.

Another topic that deserves more attention is risk communication, which forms the link between assessment and decision-making, and subsequent management. Therewith, risk communication determines the usefulness of risk assessment (Ignelzi et al., 2007). Studies on risk communication are scarce, however, Minoudis et al. (2013) reported that many probation officers have difficulties writing strong case formulations.

The present review did not address the usefulness of the methods for usefulness of in clinical practice (e.g., repeated assessments, and quantitative information such as length of administration). Monitoring changes in risk assessment and management revision process have been described as central to preventing future violence (Douglas & Kropp, 2002). A study showed that clinicians often simply copy their prior assessment (Howard & Moore, 2009), and even if they complete a reassessment, it is unknown whether they use them to refine their risk management plans.

### **Summary and clinical implications**

This review identified 21 methods/guidelines for identification, construction of theory, and risk management, but only two of these methods seemed to cover all the steps of the pathway. Clinicians can use the overview of described and evaluated methods as a tool to make a well-informed decision when choosing a method for one or more of the steps. It is advised to use (where possible and relevant, a combination of) instruments that cover each step of the pathway. Awareness about the steps needs to be raised and realizing that – if we want to strengthen the link between assessment and management – all the phases of the pathway are of paramount importance. On an individual level, the clinician can determine what the omissions are in his knowledge, and these could become focus in peer-to-peer learning, supervision and training.

Taken together, by mapping methods that provide guidance to one or more steps of the pathway from assessment to management, this study has attempted to explore the gap between these two. Future research should now strive to narrow this gap by developing guidelines, which can ultimately lead to more effective treatment, and as a consequence, reduced recidivism.

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