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Responsiviteit en dynamische risicofactoren in de behandeling van forensische patiënten met ADHD

Inzichten vanuit de literatuur, patiënten en behandelaars

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Inhoudsopgave

1. Samenvatting/Abstract

Samenvatting

Een groot gedeelte van de daderpopulatie in de forensische psychiatrie betreft daders met ADHD, maar behandeling van dergelijke daders is een grote uitdaging vanwege hoge uitval en lage behandelmotivatie. Om meer inzicht te krijgen in het verbeteren van behandeling, is eerst nader onderzoek verricht naar de link tussen ADHD en delictgedrag. Hoewel ADHD vaak direct gerelateerd wordt aan delictgedrag, is er ook onderzoek dat laat zien dat dit verband grotendeels verklaard wordt door andere risicofactoren zoals co-morbide stoornissen (o.m. antisociale persoonlijkheidsstoornis, middelenafhankelijkheid) en sociale problemen. Om hier meer duidelijkheid over te scheppen is een systematische literatuurstudie uitgevoerd naar dynamische risicofactoren die de relatie tussen ADHD en delictgedrag kunnen verklaren. Bevindingen lieten zien dat daders met ADHD worden gekenmerkt door vroege risicofactoren die gedurende het leven een negatieve wisselwerking met de sociale omgeving kennen. Hierdoor ontwikkelen individuen met ADHD op latere leeftijd vaak gebrekkige sociale relaties en staan ze onderaan de maatschappelijke ladder. Bovendien lieten studies zien dat het verband tussen ADHD en delictgedrag wordt verklaard door co-morbide stoornissen, risicogedrag, gebrekkige keuzes, lage zelfcontrole en impulsiviteit. Individuen met ADHD nemen doorgaans meer risico en reageren vaak impulsief waardoor de kans op delicten en gerelateerd gedrag toeneemt.

Vervolgens is gekeken naar factoren die samenhangen met responsiviteit in behandeling, oftewel afstemming van de behandeling op de specifieke behoeften van forensische patiënten met ADHD. Hiertoe zijn inzichten vanuit de wetenschappelijke literatuur, patiënten en behandelaars verzameld. Slechts enkele wetenschappelijke studies naar responsiviteit werden geïdentificeerd. Deze studies lieten zien dat farmacotherapie, cognitieve therapie en psychoeducatie effectief waren in de behandeling van forensische patiënten met ADHD, onder meer door het terugdringen van no-shows. Daarnaast lieten diepte-interviews met forensische patiënten met ADHD en hun behandelaars zien dat psychoeducatie en farmacotherapie bijdroegen aan de responsiviteit. Therapieën gekenmerkt door een sterke therapeutische alliantie, heldere structuur en korte termijn beloningen werden ook als effectief beschouwd omdat deze factoren aanhaken bij de specifieke problemen van ADHD (gebrek aan concentratie, vertrouwen en beloningsgerichtheid). Tot slot bleek dat het betrekken of versterken van steunnetwerken en het verhogen van sociale en financiële stabiliteit als belangrijke factoren werden gezien in het voorkomen van uitval en het verlagen van recidiverisico.

Samenvattend lieten de studies zien dat kennis van dynamische risicofactoren en responsiviteit belangrijk is om behandeleffectiviteit te vergroten en recidive te verlagen. Behandeling kan inzetten op strategieën die helpen bij het monitoren en reguleren van gedrag en beslissingen. Bovendien kan het betrekken van het sociale netwerk van patiënten in de behandeling mogelijk bijdragen aan een verlaging van het recidiverisico.

Abstract

Forensic patients with ADHD represent a large part of the offender population, but treatment of these patients is often challenging. To gain more insight into ways to improve treatment, we first examined the association between ADHD and offending. Although many studies have argued that ADHD symptoms are directly related to offending, there is also evidence that this association is largely explained by other risk factors, such as comorbid disorders and social problems. To address this issue, empirical studies were reviewed that focused on dynamic risk factors that may explain the link between ADHD and offending. Findings suggest that offenders with ADHD are characterized by early risk factors that continuously interact negatively with the social environment. As a result, individuals with ADHD often have poor social relationships and social attainment later in life. Moreover, many studies indicated that the link between ADHD and offending is often due to comorbid disorders, risk-taking, poor decision-making, low self-control, and impulsivity. That is, individuals with ADHD are more likely to take risks and act on their impulses, which increases chances for offending and related behaviors.

Next, we examined factors related to treatment responsivity, i.e., factors that may help in adjusting treatment to the needs of patients with ADHD. To this end, perspectives from the literature, forensic patients, and therapists were examined on responsivity in treatment of patients with ADHD. A handful of studies, identified through a systematic review, indicated that pharmacotherapy, cognitive therapy and psychoeducation were effective in treatment of forensic patients with ADHD, amongst others by decreasing no-shows. Moreover, in-depth interviews with forensic patients with ADHD and their therapists showed that especially psychoeducation and pharmacotherapy increased responsivity and treatment characterized by a strong therapeutic alliance, clear structure, and short-

term reward incentives proved to be effective. In addition, involving or strengthening supportive social networks and increasing socio-economic stability were considered important ways to keep patients in treatment and reduce the risk of reoffending.

In sum, the two studies show that knowledge of dynamic risk factors and responsivity is important for prevention and intervention purposes to increase treatment effectiveness and decrease reoffending risk. Therapies could foster strategies to monitor and regulate behavior and enhance positive decision-making. Moreover, systemic approaches that include patients' social network may help in decreasing offending.

2. Inleiding

De laatste jaren is er binnen de forensisch psychiatrische zorg meer aandacht voor uitval en responsiviteit (verhogen therapietrouw en aansluiting) (Bonevski et al., 2014; Ellard-Gray, Jeffrey, Choubak & Crann, 2015; Woodall, Morgan, Sloan, & Howard, 2010). Vaak betreffen dit patiënten die door psychosociale problemen een verhoogde kans hebben op no-shows en uitval, vaker niet deelnemen aan behandeling of bij wie behandelingen minder goed aansluiten en daardoor minder effectief zijn. Dergelijke problematiek komt ook vaak voor bij forensisch psychiatrische patiënten met ADHD (Attention-Deficit/Hyperactivity Disorder) problematiek. Symptomen van ADHD, zoals verlaagde aandacht, impulscontrole stoornissen en verstoorde emotie-regulatie, kunnen namelijk bijdragen aan een verhoging van het risico op delictgedrag en recidive (Young, 2007). Daarnaast hebben forensische patiënten met ADHD- symptomen ook een verhoogde kans op uitval tijdens het behandeltraject (Stoel, Houtepen, Van der Lem, Bogaerts, & Sijtsema, 2018; Woicik, Van der Lem, Sijtsema, & Bogaerts, 2017). Tot slot sluiten huidige behandelingen minder goed aan bij deze doelgroep vanwege comorbide problematiek en ADHD-symptomen gerelateerd aan concentratie en impulsiviteit (Kooij et al., 2010).

Door deze hoge uitval is het in de eerste plaats lastig om deze patiëntengroep in behandeling te krijgen en te houden. Daarnaast lijken bestaande programma's en interventies om delictgedrag te verminderen onvoldoende gericht op de specifieke leerstijlen, leerproblemen en beperkingen van forensische patiënten met ADHD (en vaak aanverwante stoornissen, zoals Antisociale Persoonlijkheids Stoornis, Autisme Spectrum Stoornis). Met andere woorden, de *verminderde responsiviteit* van forensische patiënten met ADHD zorgt er mogelijk voor dat zij onvoldoende profiteren van reguliere behandelingen binnen de forensische zorg om de kans op toekomstig delictgedrag te verminderen of te voorkomen.

Meer kennis over de responsiviteit van forensische patiënten met ADHD is dus gewenst, omdat dit enerzijds inzicht geeft in belangrijke individuele verschillen in responsiviteit tijdens behandeling en anderzijds richting kan geven aan de aanpassing van bestaande behandelprogramma's gericht op het verminderen of voorkomen van behandeluitval en toekomstig delictgedrag. Hoewel de relatie tussen ADHD en delictgedrag controversieel is, staat het buiten kijf dat er factoren zijn die deze relatie kunnen verklaren en de kans op delictgedrag voor individuen met ADHD kunnen vergroten. Kennis van deze factoren is cruciaal voor de inrichting van behandeling en het vergroten van de responsiviteit tijdens behandeling. Om dit nader te onderzoeken is er in de eerste plaats een systematisch literatuuronderzoek uitgevoerd naar dynamische risicofactoren in de relatie tussen ADHD en delictgedrag. In de tweede plaats is de responsiviteit van forensische patiënten met ADHD nader onderzocht vanuit verschillende gezichtspunten. Hierbij is een systematische literatuurstudie uitgevoerd naar responsiviteitsfactoren in de behandeling van daders met ADHD. Daarnaast is een aantal poliklinische forensische patiënten (N=10) en hun behandelaars (N=11) nader bevraagd middels semigestructureerde interviews gericht op responsiviteit, de therapeutische werkalliantie, oorzaken van behandeluitval en het vergroten van de aansluiting van de behandeling voor deze doelgroep.

In de volgende hoofdstukken worden deze twee studies beschreven, voorafgegaan door een uitgebreide Nederlandstalige samenvatting.

3. Uitgebreide Nederlandstalige samenvatting

De laatste jaren is er binnen de forensisch psychiatrische zorg meer aandacht voor uitval en beperkte behandelvoortgang. Dergelijke problematiek komt vaak voor bij forensisch psychiatrische patiënten met ADHD (Attention-Deficit/Hyperactivity Disorder) problematiek (Stoel et al., 2018; Woicik et al., 2017). Symptomen van ADHD, zoals verlaagde aandacht, beperkte impulscontrole en verstoorde emotie-regulatie, kunnen namelijk bijdragen aan een verhoging van het risico op delictgedrag en recidive (Young, 2007). Daarnaast hebben forensische patiënten met ADHD ook een verhoogde kans op uitval tijdens het behandeltraject en sluiten huidige behandelingen minder goed aan bij deze doelgroep (Kooij et al., 2010). Ook lijken bestaande programma's en interventies om delictgedrag te verminderen onvoldoende gericht op de specifieke leerstijlen, leerproblemen en beperkingen van forensische patiënten met ADHD. Met andere woorden, de *verminderde responsiviteit,* ofwel de aansluiting tussen patiënt en behandeling, van forensische patiënten met ADHD zorgt er mogelijk voor dat zij onvoldoende profiteren van reguliere behandelingen binnen de forensische zorg om de kans op toekomstig delictgedrag te verminderen of te voorkomen.

Middels twee onderzoeken is getracht meer kennis te verkrijgen over de responsiviteit van forensische patiënten met ADHD om zo relevante inzichten voor toekomstige behandelingen te genereren. In het eerste onderzoek is een systematisch literatuuronderzoek uitgevoerd naar dynamische risicofactoren in de relatie tussen ADHD en delictgedrag die een goede aansluiting tussen patiënt en behandeling mogelijk in de weg staan. Deze factoren bieden veel aanknopingspunten voor behandeling omdat zij veranderbaar zijn en door effectieve behandeling kunnen worden verminderd en daarmee ook het risico op delictgedrag verlagen. In de tweede studie is de responsiviteit van forensische patiënten met ADHD nader onderzocht vanuit verschillende gezichtspunten, te weten de wetenschappelijke literatuur, forensische patiënten met ADHD en hun behandelaars. Tot slot hebben de twee studies uitgemond in een handreiking voor de praktijk met daarin de belangrijkste inzichten uit het onderzoek en concrete handvatten voor de klinische praktijk.

3.1 Dynamische risicofactoren in de relatie tussen ADHD en delictgedrag

Om meer inzicht te krijgen in het verbeteren van behandeling, is eerst nader onderzoek verricht naar de link tussen ADHD en delictgedrag. Hoewel ADHD vaak direct gerelateerd wordt aan delictgedrag, is er ook onderzoek dat laat zien dat dit verband grotendeels verklaard wordt door andere risicofactoren zoals co-morbide stoornissen en sociale problemen (Grieger & Hosser, 2012; Gudjonsson et al., 2014). Om hier meer duidelijkheid over te scheppen is een systematisch literatuuronderzoek uitgevoerd volgens de PRISMA-methodiek naar dynamische risicofactoren die de relatie tussen ADHD en delictgedrag kunnen verklaren. Dynamische risicofactoren verwijzen hierbij naar risicofactoren die op de korte of lange termijn kunnen veranderen door gerichte en effectieve behandeling. In totaal werden 74 relevante studies geïdentificeerd.

Ten eerste blijkt uit de literatuur dat ADHD vaak voorkomt in forensische populaties (Young et al., 2015). Toch is deze relatie tussen ADHD en delictgedrag niet eenduidig. Om hier meer zicht op te krijgen is in veel onderzoek gekeken naar risicofactoren die deze relatie enerzijds kunnen verklaren of anderzijds de voorwaarden schetsen waaronder ADHD gerelateerd is aan delictgedrag. Zo blijkt dat daders met ADHD zich onderscheiden van andere individuen met ADHD door een afwijkend ontwikkelingspatroon (bijv. Patterson et al., 2000). In lijn met de notie van Moffitt (1993; 2018) over daders die delictgedrag gedurende de levensloop laten zien, zien we dat dit voor een gedeelte van de daders met ADHD ook opgaat. Vaak ontstaat het delictgedrag door een negatieve wisselwerking tussen het individu en de sociale omgeving, wat doorgaans op jonge leeftijd al begint. Door deze continue wisselwerking kunnen individuen met ADHD op latere leeftijd relaties ontwikkelen van een lage kwaliteit, komen zij eerder in aanraking met criminele vrienden en maken zij vaak geen school of opleiding af. Tezamen zorgt dit voor een vergrote kans om op het criminele pad te geraken en geeft dit de noodzaak aan van vroege identificatie en preventie.

Ten tweede laat de literatuur zien dat kennis over dynamische risicofactoren belangrijke inzichten voor behandeling geeft. Zo zou behandeling niet alleen oog voor ADHD moeten hebben, maar zich ook bezig moeten houden met co-morbide problematiek zoals een Antisociale Persoonlijkheidsstoornis en middelenmisbruik. Het buiten beschouwing laten van dergelijke co-morbide problematiek kan behandelvoortgang mogelijk hinderen. Daarnaast wezen een aantal studies uit dat de link tussen ADHD en delictgedrag verklaard kan worden door risicogedrag, slechte

keuzes, lage zelfcontrole en impulsiviteit (bijv. Carlotta et al., 2011; Pollak et al., 2019). Kortom, factoren die kenmerkend zijn voor overwegend impulsief/hyperactief subtype binnen de ADHD-populatie. Behandelaars zouden zich dus kunnen richten op het aanleren van het monitoren en reguleren van gedrag en goede keuzes bekrachtigen. Ook bleek uit een aantal studies dat ADHD-symptomen reacties van de omgeving uitlokken die verder risicogedrag in de hand werken (bijv. een uit de hand gelopen conflict). Voor daders met ADHD kan het dus belangrijk zijn om stappen te ondernemen om spanningen vanuit de omgeving te minimaliseren en leren om te gaan met sociale tegenslagen.

Tot slot wijst de literatuur uit dat sociale factoren (bijv. het huidige sociale netwerk) een belangrijke rol spelen in de link tussen ADHD en delictgedrag (Rosler et al., 2014). Behandelprogramma's zouden het sociale netwerk meer kunnen betrekken in de behandeling door steunrelaties te bevorderen en negatieve sociale relaties te ontmoedigen. Een manier om dit te bewerkstelligen is het includeren van netwerkleden in de behandeling als onderdeel van een steunnetwerk. Dit zou een positieve invloed op de behandelvoortgang en therapietrouw kunnen hebben (zie ook de bevindingen van deelstudie twee).

Kortom, om de responsiviteit tijdens behandeling te bevorderen is het aan te raden om a) zowel ADHD als co-morbide problematiek te behandelen om zo beter aan te sluiten bij de obstakels van de patiënt, b) het aanleren van cognitieve vaardigheden (bijv. verhoogde concentratie, uitgestelde beloning, verminderde impulsiviteit) die bijdragen aan het maken van prosociale keuzes en patiënten de middelen geven om de volgende stappen in hun behandeltraject te zetten en c) het betrekken van het sociale netwerk om zo de motivatie voor behandeling hoog te houden (extrinsieke motivatie) en daarmee zorgen voor een hogere therapietrouw (zie ook de handreiking).

3.2 Responsiviteit in de behandeling van forensische patiënten met ADHD

In de tweede studie is gekeken naar factoren die samenhangen met responsiviteit in behandeling zoals geformuleerd in het Risk-Need-Responsivity model en het Good Lives Model, oftewel de afstemming van behandeling op de specifieke behoeften van forensische patiënten met ADHD. Tot op heden zijn beschikbare behandelprogramma's voor daders onvoldoende afgestemd op de specifieke behoeften van patiënten met ADHD, zoals leerstijlen en problemen die te maken hebben met de symptomen van ADHD zoals een korte aandachtspanne en verhoogde beloningsgevoeligheid. Om meer informatie te verschaffen over relevante factoren die de responsiviteit tijdens behandeling kunnen vergroten, zijn inzichten vanuit de wetenschappelijke literatuur, patiënten en behandelaars verzameld.

3.2.1 Inzichten vanuit de wetenschappelijke literatuur

Op basis van een systematisch literatuuronderzoek volgens de PRISMA-methodiek zijn 10 empirische studies geïdentificeerd die ingaan op responsiviteit en therapietrouw bij daders met ADHD. Deze studies lieten zien dat farmacotherapie op basis van methylfenidaat effectief was in het terugdringen van ADHD-symptomen in daders (Lichtenstein et al., 2012). Daarnaast bleek dat cognitieve therapie, gecombineerd met psychoeducatie en farmacotherapie, effectief was in het verlagen van ADHD-symptomen en delictgedrag (Buitelaar et al., 2020). Tot slot wees een aantal studies uit dat ADHD-symptomen gerelateerd waren aan meer *no-shows* (niet op komen dagen tijdens behandeling), vanwege meer problemen met impulsiviteit, aandacht, vergeetachtigheid, plannen en een meer chaotische levensstijl (Stoel et al., 2018; Woicik et al., 2017). Eén behandelprogramma werd geïdentificeerd dat zich specifiek op daders met ADHD richtte. Deze interventie (R&R2ADHD) was effectief in het verhogen van probleemoplossend vermogen en het verlagen van boosheid en impulsiviteit (Emilsson et al., 2011), maar werd niet in verband gebracht met responsiviteit.

3.2.2 Inzichten vanuit forensische patiënten met ADHD

Daarnaast werden er 10 diepte-interviews met forensische patiënten met ADHD gehouden. Patiënten gaven aan dat psychoeducatie en cognitieve gedragstherapie hielpen om het leven weer op de rit te krijgen en bijdroegen aan een verlaging van delictgedrag. Patiënten hadden wisselende ervaringen met farmacotherapie. Sommigen gaven aan dat hun vooruitgang te danken was aan ADHD-gerelateerde medicatie, maar anderen vonden dat dergelijke medicatie een negatief effect had op hun gedachten, helderheid en gedrag. Hoewel patiënten verschilden in wat voor hen effectief was,

waardeerde iedereen de gepersonaliseerde en onbevooroordeelde aanpak in het behandelcentrum. Daarnaast noemden patiënten een aantal gedeelde factoren die bijdroegen aan responsiviteit tijdens de behandeling. Zo was een steunnetwerk belangrijk voor patiënten om in behandeling te blijven en om informatie tijdens de behandelsessies te verwerken. Ook was familie een belangrijke motivatie om aan de behandeling te starten en om er mee door te gaan. Enkele praktische hulpmiddelen vanuit het behandelcentrum zoals het sturen van herinneringen, het visualiseren van informatie en flexibiliteit in het plannen van afspraken hadden ook een positief effect op therapietrouw. Tot slot gaven patiënten aan dat deviante vrienden, deviante sociale omgevingen en middelengebruik belangrijke risicofactoren waren voor recidive. Veel patiënten gaven aan deze negatieve externe invloeden actief uit de weg te gaan, wat voor sommigen ook tot een sociaal isolement leidde.

3.2.3 Inzichten vanuit behandelaars

Tot slot werden 11 diepte-interviews met behandelaars gevoerd. Het perspectief van behandelaars kwam sterk overeen met dat van de patiënten. Evenals patiënten zagen behandelaars psychotherapie als een belangrijke manier om het inzicht van patiënten te vergroten over hoe ADHD gerelateerd kan zijn aan delictgedrag en andere problemen. Ook zagen behandelaars een goed steunnetwerk en goed gestructureerde behandelsessies en een open houding naar patiënten als de sleutel tot een succesvolle behandeling. Behandelaars noemden daarnaast ook een aantal unieke zaken: om de responsiviteit tijdens behandeling te vergroten is het belangrijk om patiënten gemotiveerd te houden door kleine stapjes positief te bekrachtigen en humor te gebruiken om een goede band met patiënten op te bouwen. Het meest in het oog springend was dat verschillende behandelaars ADHD eerder als een handicap omschreven en niet zozeer iets waarvan men kan 'genezen'. Behandeling dient daarom in te zetten op het leren omgaan met deze handicap in het dagelijks leven. Daar komt bij dat het terugkeren van patiënten niet moet worden opgevat als het falen van de behandeling, maar als onderdeel van een doorlopend behandeltraject. Om dit te faciliteren zijn korte lijntjes in de communicatie tussen organisaties, patiënten en behandelaars nodig, zodat patiënten gemakkelijk weer in kunnen stromen in hun behandeltraject.

3.3 Conclusie

Hoewel het debat over de aanwezigheid van een directe link tussen ADHD en delictgedrag blijft bestaan, is het duidelijk dat ADHD vaker voorkomt in daderpopulaties dan in de algemene populatie. Daarnaast bleek uit de eerste studie dat er risicofactoren zijn die kans op delictgedrag verhogen in individuen met ADHD. De dynamische risicofactoren die werden geïdentificeerd kunnen richting geven aan toekomstige behandeling. Tot op heden ontbreken bewezen effectieve behandelprogramma's voor daders met ADHD, maar de huidige literatuurstudie biedt belangrijke startpunten om programma's op te zetten en daarmee delictgedrag en recidive van individuen met ADHD te verminderen door onder meer in te zetten op therapeutische alliantie, korte termijn beloningen en het betrekken van het sociale netwerk.

Uit de tweede studie bleek op basis van het literatuuronderzoek dat farmacotherapie kan helpen bij het verminderen van ADHD-symptomen die een negatief effect hebben op therapietrouw. Medicatie voor ADHD kan therapietrouw dus verhogen en daardoor zorgen voor een vermindering van het recidiverisico. Daarnaast lieten de diepte-interviews zien dat therapieën gekenmerkt door een sterke therapeutische alliantie, heldere structuur en korte termijn beloningen effectief kunnen zijn, omdat deze factoren sterk aanhaken bij de specifieke problemen van ADHD (gebrek aan concentratie, vertrouwen en beloningsgerichtheid). Tot slot bleek dat het betrekken of versterken van steunnetwerken en het verhogen van sociale en financiële stabiliteit als belangrijke factoren werden gezien in het voorkomen van uitval en het verlagen van recidiverisico.

De drie perspectieven in de tweede studie laten elk een unieke kijk op responsiviteit in behandeling zien, maar komen op enkele vlakken ook overeen. Deze perspectieven zijn ook relevant bij de discussie over de vraag in hoeverre ADHD gerelateerd is aan delictgedrag. Zo bleek dat ADHD niet altijd als een risicofactor voor delictgedrag werd gezien, maar eerder als een onderliggende factor voor verhoogd sensatie zoeken en middelengebruik, wat vervolgens de kans op delictgedrag kan verhogen. Daarnaast was het terugdringen van ADHD-symptomen gerelateerd aan een vermindering van delictgedrag en verhoogde therapietrouw. Kortom, het is mogelijk dat ADHD weliswaar geen direct verband houdt met delictgedrag, maar eerder een belangrijke oorzaak is van risicogedragingen en lage therapietrouw.

Bij beide studies zijn kanttekeningen te plaatsen. Zo zijn de inzichten van de literatuurstudies voornamelijk gebaseerd op populaties uit de VS en moet verder onderzoek uitwijzen in hoeverre deze inzichten van toepassing zijn op de Nederlandse populatie van forensische patiënten. Daarnaast is in dit onderzoek louter gekeken naar studies uit internationale peer-reviewed tijdschriften. Dit heeft als voordeel dat de studies door onafhankelijke experts zijn beoordeeld en daarom vaak van gedegen kwaliteit zijn, maar het nadeel is dat studies die niet gepubliceerd zijn buiten beschouwing zijn gelaten. Dit betreft vaker studies met niet-significante bevindingen, wat zorgt voor een vertekening van het onderzoeksveld (de zogeheten 'file-drawer bias'). Tot slot is het gebruik van interviews ook onderhevig aan kritiek omdat het een idiosyncratische weergave geeft. Hoewel het afnemen van meerdere interviews zorgt voor een meer algemeen beeld, is het aantal interviews in de huidige studie te klein om generaliserende uitspraken te doen. Desalniettemin leveren de interviews relevante inzichten op die voor een groot gedeelte ook bevestigd worden door de literatuur.

Samenvattend laten beide studies zien dat kennis van dynamische risicofactoren en responsiviteit belangrijk is om behandeleffectiviteit te vergroten en recidive te verlagen. Behandeling kan inzetten op strategieën die helpen bij het monitoren en reguleren van gedrag en beslissingen (zie ook de handreiking). Bovendien kan het betrekken van het sociale netwerk van patiënten in de behandeling mogelijk bijdragen aan een verlaging van het recidiverisico.

4. Dynamic risk factors in the association between ADHD and adult offending: A review

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4.1 Abstract

Although many studies have argued that ADHD symptoms are directly related to offending, there is also evidence that this association is largely explained by other risk factors, such as comorbid disorders and social adversity. To address this issue, empirical studies were reviewed that focused on dynamic risk factors that may explain the link between ADHD and offending. Findings suggest that offenders with ADHD are characterized by early risk factors that continuously interact negatively with the social environment. As a result, individuals with ADHD often have poor social relationships and social attainment later in life. Moreover, many studies indicated that the link between ADHD and offending is often due to comorbid disorders, risk-taking, poor decision-making, low self-control, and impulsivity. That is, individuals with ADHD are more likely to take risks and act on their impulses, which increases chances for offending and related behaviors. Knowledge of these dynamic risk factors is important for prevention and intervention purposes to decrease reoffending risk. Future therapies could foster strategies to monitor and regulate behavior and enhance positive decision-making. Moreover, systemic approaches that include patients' social network may help in decreasing offending.

Key words: ADHD; offending; criminality; risk; RNR model; adult

4.2 Introduction

ADHD is a neurocognitive disorder with an onset in early childhood and characterized by hyperactivity, impulsivity, and deficits in attention- and emotion regulation (American Psychiatric Association, 2013). The prevalence of ADHD among offenders is high in comparison to the general population. Recent meta-analyses reported that ADHD was present in 30% of juvenile offenders and 26% of adult offenders (Baggio et al., 2018; Young et al., 2015). In contrast, prevalence estimates in the general adult population usually vary between 1% and 6% (Faraone & Biederman, 2005; Kessler et al., 2006). It has been argued that if ADHD symptoms are directly related to offending and if treatment reduces these symptoms, then ADHD treatment can be considered a preventive measure to reduce (re-)offending (Barry & Gaines, 2008).

However, studies into ADHD as a risk factor of offending and recidivism have yielded mixed results (e.g., Mannuzza, Klein, & Moulton, 2008; Mohr-Jensen & Steinhausen, 2016; Mordre et al., 2011; Pratt et al., 2002). It is often assumed that ADHD symptoms such as attention deficits, impulsivity, and poor emotion regulation skills contribute to an increased risk of (re)offending (Young, 2007). In line with this, several studies showed that ADHD is a risk factor for engaging in criminal behavior (Eme, 2014; Mohr-Jensen et al., 2019; Mohr-Jensen & Steinhausen, 2016; Philipp-Wiegmann et al., 2018; Pratt et al., 2002). For example, in a recent systematic review and meta-analysis of studies following children and adolescents with ADHD longitudinally, it was concluded that childhood ADHD was associated with a two to three-fold increase in risk of arrests, convictions, and incarcerations in adolescence and adulthood (Mohr-Jensen & Steinhausen, 2016). However, according to the authors, many studies included in their review carried important limitations. For one, most samples were homogenous in terms of sex, ethnicity, and socioeconomic background, as they largely included Caucasian middle-class males. Moreover, studies often failed to consider confounding factors, such as comorbid antisocial disorders (e.g., Antisocial Personality Disorder [ASPD], Conduct Disorder [CD]), and frequently co-occurring developmental problems such as autism spectrum disorder and intellectual disabilities. In addition, few studies had the appropriate sample size and power to control for potential confounders.

Studies that accounted for comorbid antisocial disorders or other risk factors predominantly find that the relation between ADHD and offending is largely explained by such factors. For instance, several studies showed that the relation between ADHD and offending is confounded by commonly comorbid maladaptive personality, such as Conduct Disorder (CD) or Antisocial Personality Disorder (ASPD; e.g., Grieger & Hosser, 2012; Gudjonsson et al., 2014; Lilienfeld & Waldman, 1990; Mannuzza et al., 1989). These disorders are strongly related to offending, even when criminal behavior itself is not a criterion for ASPD (e.g., Babinski, Hartsough, & Lambert, 1999; Satterfield et al., 2007; Sibley et al., 2011; Young, Wells, & Gudjonsson, 2011). Several studies found that the association between ADHD and offending became insignificant, when controlling for comorbid disorders and problems, such as substance use or ASPD (Gudjonsson et al., 2014; Lilienfeld & Waldman, 1990; Mannuzza et al., 2008). Individuals suffering from both ADHD and comorbid antisocial disorders may therefore constitute a different group from those suffering from ADHD only (Lilienfeld & Waldman, 1990). It thus remains a point of debate to what extent ADHD by itself is a risk factor directly related to offending. However, it is evident that offenders often show symptoms of ADHD, and that ADHD may predispose to other risk factors that increase vulnerability for offending, such as poor academic performance. Hence, it is essential to disentangle risk factors specific to offenders with ADHD and to provide appropriate treatment to reduce the impact of these risk factors to prevent (re-)offending. Surprisingly, given the high prevalence of ADHD in prisons and forensic psychiatric settings and research investigating the association between ADHD and offending, there is a lack of knowledge on cognitive-behavioral interventions for offenders with ADHD. In recent years, it has become widely acknowledged that interventions aimed at reducing recidivism can be effective if they meet the principles of the Risk-Need-Responsivity (RNR) model (Andrews & Bonta, 2010). This model proposes three basic principles on which treatment should be based. The RNR-model postulates that the intensity and duration of treatment should be adapted to patients' *risk* of reoffending, the focus should be on criminogenic *needs* (risk factors that directly influence criminal behavior) of the patient, and interventions should be adapted to general responsivity principles (e.g., social learning, positive reinforcement) and specific treatment *responsivity* of patients, such as their preferred learning styles and intellectual capacities.

Although all three principles are important to consider in developing treatment programs, the Need-principle provides a basic starting point for the focus of the treatment program. Treatment should focus on decreasing risk factors for criminal behavior while simultaneously enhancing protective factors against such behavior. After determining the focus of treatment through the Need-

principle, the Responsivity- and Risk-principles guide choices on the design of the treatment with regard to the type, length, intensity, and complexity of treatment. In this review, we will investigate dynamic criminogenic risk factors (needs) of offenders with ADHD, to provide starting points for designing appropriate treatment programs for this overrepresented group in forensic settings. More specifically, which dynamic risk factors explain the relation between ADHD and offending, and may thus be targets for interventions aimed at prevention of (re-)offending? To answer this question, we review dynamic risk factors related to ADHD in forensic settings and populations. We exclude static risk factors (e.g., age of onset of offending, IQ, maltreatment history) because these cannot be changed, whereas dynamic risk factors (e.g., deviant peers, poor achievement, psychiatric comorbidity) can potentially change. Knowledge of dynamic risk factors is important for intervention purposes in which these factors can be targeted to decrease recidivism risk (Andrews & Bonta, 2010).

4.3 Method

4.3.1 Literature search

Systematic literature searches were conducted in line with the PRISMA guidelines (Moher et al., 2009) to identify empirical studies on dynamic risk factors in the relation between ADHD and adult offending. In several online databases, including Web of Science, PsycINFO, PubMed, ScienceDirect, and Google Scholar, we used Boolean Operators and the following search terms: *"Attention-Deficit/Hyperactivity Disorder"* or *"Attention Deficit Disorder"* or *ADHD*, and *"risk factor"*, and *crim** or *delinq** or *violence* or *externalising behav** or *externalizing behav** or *violence*. Moreover, we combined the following search terms: *"Attention-Deficit/Hyperactivity Disorder"* or *ADHD*, and *recidivism* or *reoffending*. The search queries were conducted between March 26, 2019 and May 23, 2019.

Using this approach yielded 656 hits, with a large degree of overlap. After excluding duplicates, a first screening based on title and abstract was conducted, which resulted in the exclusion of 396 records. Subsequently, full-text articles were read and screened articles for eligibility, thereby identifying 74 relevant studies that focused on ADHD and offending in adult populations (see Figure 1 for the PRISMA flow chart).

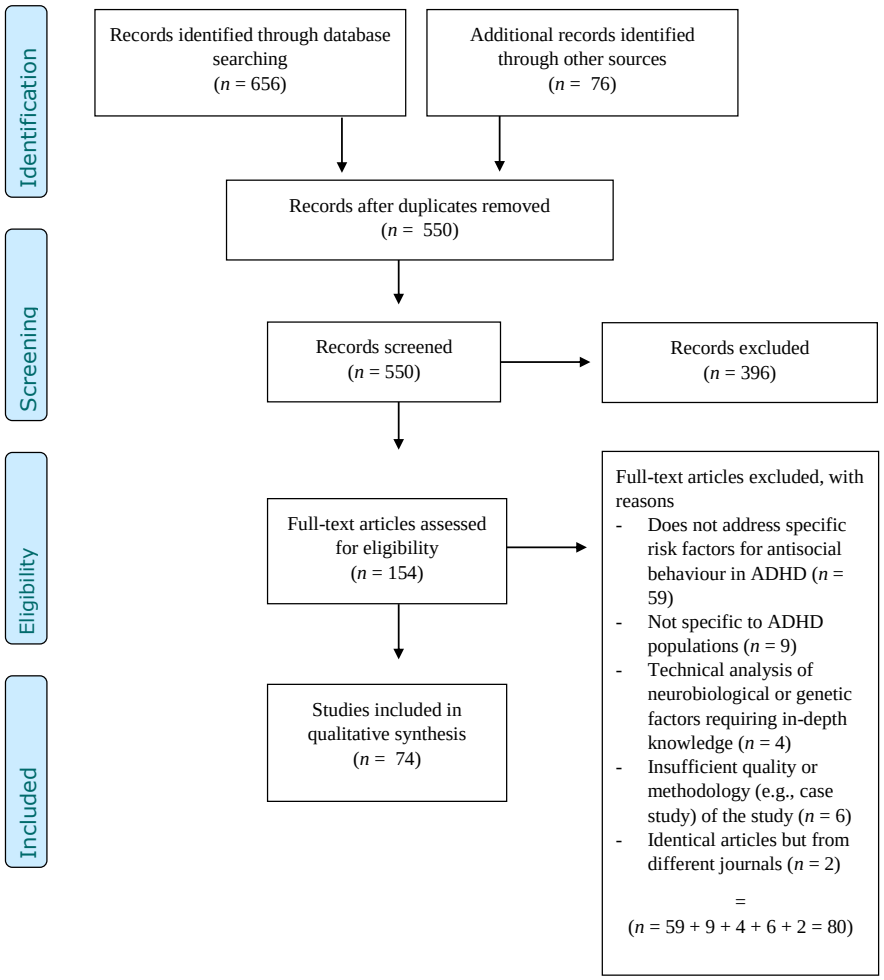

Figure 1. PRISMA flow chart of the literature review

4.3.2 Selection criteria

For this review, we selected studies that examined dynamic risk factors in the association between ADHD and constructs related to offending in adulthood, such as aggression, delinquency, antisocial behavior, or externalizing problems. Identified studies were published between 1978 and 2019. The focus of the current review is on risk factors of adult offending, but some risk factors from childhood or adolescence, such as childhood maltreatment, may affect adult development. Therefore, studies that included risk factors in childhood or adolescence that were clearly linked to offending in adulthood were also taken into account.

After selection, each study was categorized based on the type of dynamic risk factor. To this end, we distinguished between psychiatric comorbidity, individual differences, risk-taking behavior, and social risk factors.

4.4 Results

Multiple correlates and features of ADHD have been identified as plausible explanations for the elevated rates of ADHD diagnoses in offenders. Individual characteristics such as impulsivity and impaired self-control are associated with both ADHD and offending (Barkley, 2006; Pratt & Cullen, 2000; Retz et al., 2012), and have been found to explain offending in ADHD (Babinski et al., 1999; Gudjonsson et al., 2014; Satterfield et al., 2007; Unnever & Cornell, 2003). Some have argued that difficulties in delaying rewards and exerting control over behavior underlie the association between these ADHD characteristics and offending (Bramham & Giollabhui, 2016). Yet, understanding the relationship between ADHD and offending is complicated by the co-occurrence of other problems that are associated with offending (Gudjonsson et al., 2014). A wealth of studies has found that conduct disorders (CD) (Babinski et al., 1999; Lynam, 1996; Sibley et al., 2011), substance abuse (Biederman et al., 1997; Gudjonsson et al., 2014; Retz & Rosler, 2009; Young et al., 2011), and personality disorders (Mannuzza et al., 1993; Young, Sedgwick, et al., 2015) explain the relation between ADHD and offending. Furthermore, contextual factors, such as experiencing childhood maltreatment, socio-economic status, deviant peer influences, and parenting styles have also been implicated in the relationship between ADHD and offending (De Sanctis et al., 2012; Farrington, Ttofi, & Coid, 2009; Gudjonsson et al., 2014; Satterfield et al., 2007). In the following sections, we discuss these risk factors in more detail.

4.4.1 Comorbid psychiatric disorders

Antisocial spectrum disorders. Much research suggests that ADHD by itself does not increase the risk for offending, but only when it co-occurs with psychiatric problems from the antisocial spectrum disorder (e.g., Antisocial Personality Disorder, or its precursor CD; Lynam, 1996; Mordre et al., 2011; Sebastian et al., 2019; Sibley et al., 2011). Often, studies find that the likelihood of offending is increased when ADHD co-occurs with CD (Farrington, Loeber, & Van Kammen, 1990; Moffitt, 1990) and/or Oppositional Defiant Disorder (ODD), sometimes finding a prevalence that is almost twice as high (Satterfield et al., 1994). The strong relationship between ODD or CD and later antisocial behavior is not surprising, because ODD, CD, and antisocial behavior all share similar underlying constructs (Loeber et al., 2000).

Several studies examined the extent to which ADHD is a risk factor for antisocial behavior independently of conduct problems. In a 5-year longitudinal study among a diverse group of preadolescent boys with ADHD (n = 100) and age-matched comparison boys (n = 75), it was found that childhood ADHD did not predict adolescent delinquency severity when controlling for overt and covert antisocial behavior and noncompliance in childhood (Lee & Hinshaw, 2004). These findings were consistent with a systematic review by Lahey, McBurnett, and Loeber (2000) and a large 30-year follow-up study by Satterfield and colleagues (2007), which suggested that childhood ADHD is not an independent predictor of delinquency when controlling for early antisocial behavior. Moreover, Gudjonsson and colleagues (2014) investigated the relation between ADHD and offending in a sample of 11,388 students and found a weak association between ADHD and offending, after controlling for age and gender. However, this association was only observed in students with comorbid problem behaviors, especially substance abuse and conduct problems. After accounting for this co-morbidity, ADHD explained less than 1% of the variance for violent and non-violent offending. Similar results were found in a large (n = 541) longitudinal study in which former Norwegian child psychiatric in-patients were followed-up 19 to 41 years after hospitalization (Mordre et al., 2011). This study showed that CD in childhood in combination with ADHD was strongly associated with later

delinquency, but that ADHD by itself did not increase the risk for later offending. In contrast, another study among 288 boys with ADHD and 209 boys without ADHD revealed that although childhood ADHD in combination with CD created the highest risk for delinquency, boys with ADHD-only were also at increased risk of offending in young adulthood (Sibley et al., 2011). Moreover, ADHD was found to be one of the most robust early predictors of CD (Lahey et al., 2000) and follows a more persistent course (Lahey et al., 1995; Moffitt et al., 1996). Hence, it seems that CD not only worsens the prognosis for those with ADHD, but that comorbid ADHD also leads to a worse prognosis for children with CD, compared to those with CD only.

There is consensus that the progression to serious delinquency begins early, with problems at school, at home, and with peers (Sibley et al., 2011), and that ADHD can contribute to this developmental path (Loeber, 1990; Moffitt, 1993a; Patterson, DeGarmo, & Knutson, 2000). Children with ADHD are more likely to elicit maladaptive parenting by their challenging behavior, and more likely to grow up in adverse families and neighborhoods (Chronis et al., 2007; Rutter, 2006). The influence of negative environmental factors (e.g., poor parenting, life stressors) may elicit disruptive and deviant behavior – leading to a comorbid diagnosis of ODD, and, eventually, CD (Greene, 2006; Patterson et al., 2000). About 30% to 50% of children and adolescents with ADHD are also diagnosed with ODD and/or CD (Biederman, Newcorn, & Sprich, 1991; Cantwell, 1996; Elia, Ambrosini, & Berrettini, 2008; Hinshaw, 1992a; Jensen, Martin, & Cantwell, 1997; Spencer, 2006), with one study estimating the progression from ADHD to comorbid ODD to be around 59% (Barkley, 2006). In these children, chances are high that antisocial behavior persists and that later offending occurs (Sibley et al., 2011). Moreover, Retz and Rösler (2009) argued that the combination of ADHD and CD increases the risk to develop ASPD and subsequent engaging in offending behavior.

In sum, although the debate whether ADHD without comorbid disruptive behavioral disorders increases the risk of antisocial behavior is ongoing, it can be concluded that ODD and CD are, at least to some extent, risk factors for adult offending.

Substance Use Disorder. Individuals with ADHD are at increased risk for Substance Use Disorder (SUD), even when controlling for comorbid ODD or CD (Szerman, Martínez-Raga, & Knecht, 2012). Around 25% of individuals with ADHD develop SUD in adolescence or early adulthood (Wilens, 2004b). Individuals with ADHD and comorbid SUD become dependent more quickly and remain dependent for longer periods compared to individuals without ADHD (Levin et al., 2004; Wilens, 2004a). Moreover, they are at increased risk for treatment failure and offending (Bramham & Giollabhui, 2016). Román-Ithier and colleagues (2017) found a significant relation between ADHD and a history of repeated incarcerations and total number of offending and conviction categories – which indicates high variety in offending patterns. This relation was mainly explained by comorbid substance abuse. In a large study including 11,388 students (Gudjonsson et al., 2014), it was also found that current drug use (i.e., past 30 days) was the single best predictor of nonviolent and violent delinquency. The weak significant relationship between ADHD and offending disappeared when controlling for other factors, among which SUD was the most important moderator. Moreover, among participants diagnosed with adult ADHD, one study compared those with a history of offending behavior (n = 30) with non-offenders (n = 43) (Scully, Young, & Bramham, 2014). The authors found that cannabis use was one of the factors that predicted offending in this study. Substance dependence was also significantly more common for offenders than non-offenders in this study, and the offender group was more likely to have ever tried or to be a regular user of cannabis, amphetamines, and smoking heroin. Finally, in a longitudinal study, it was shown that ADHD was related to alcohol problems and violent offending, with the combination of these factors appearing together 10 times more frequently than could be expected by chance (Klinteberg et al., 1993).

The aforementioned findings are in line with other studies that suggest substance use is an important factor in the link between ADHD and adult offending (Fergusson & Boden, 2008; Ginsberg, Hirvikoski, & Lindefors, 2010; Young et al., 2011a). Importantly, the study by Young, Wells, and Gudjonsson (2011a) revealed that ADHD and substance abuse (specifically hard drug use) were the most powerful predictors of previous offending among prisoners, and that they considerably reduced the impact of early offending and antisocial personality disorders as risk factors. In another study from the same authors, substance dependence was identified as the single most important motivation for offending in a sample of offenders with ADHD (Gudjonsson, Wells, & Young, 2011). One reason for the high prevalence of substance abuse may be that offenders with ADHD are more likely to use substances, particularly amphetamines, to self-medicate (Appelbaum, 2009; Wilens, 2004a). Moreover, adults with ADHD and SUD may be more impulsive, opportunistic, and inattentive to the risk of being apprehended when buying illegal substances and when engaging in illegal activities in order to gain money for buying the substances (Gudjonsson et al., 2011). One of the primary reasons

for persistent offending in ADHD individuals with comorbid SUD is probably the need to acquire money for continued drug use (Hall, 1996).

In sum, individuals with ADHD seem more prone to develop problematic patterns of substance use, and the combination of ADHD and SUD increases chances for offending. Hence, SUD often occurs as a risk factor in the relation between ADHD and offending, and vice versa. Increased levels of sensation seeking and risk-taking behaviors may be one of the reasons why individuals with ADHD are likely to engage in substance abuse in the first place and to persist in using drugs (Pollak et al., 2019). The association between ADHD and risk-taking is further reviewed in the next section.

4.4.2 Risk-taking and decision-making

ADHD is associated with several forms of risk-taking behavior (Dekkers et al., 2016; Pollak et al., 2019). A recent review (Pollak et al., 2019) aimed to examine the scope of ADHD-related risk-taking behavior and to highlight the potential underlying mechanisms of this association. Reviewing the literature, the authors concluded that ADHD is associated with several forms of risk-taking behavior, such as risky driving, substance abuse, aggression/delinquency, sexual risk-taking, gambling, financial risk-taking, and unhealthy eating. These findings were corroborated by laboratory risk-taking tasks, of which two meta-analyses showed that individuals with ADHD made more risky decisions (Dekkers et al., 2016; Mowinckel et al., 2015). The review (Pollak et al., 2019) also included studies on individual differences and suggested that processes related to comorbid disorders (CD and SUD increase risk-taking behavior), anger problems, reluctance to invest effort, sensation seeking, executive functioning deficits, peer rejection, and low parental monitoring, may explain the link between ADHD and risk-taking behavior. Knowledge of such factors may facilitate the identification of at-risk individuals (e.g., those with comorbid CD/SUD), and may lead to opportunities to reduce risk factors (e.g., peer rejection), and to boost protective factors (e.g., increase parental monitoring; Pollak et al., 2019).

Another important factor that may contribute to the increased risk-taking in ADHD are deficits in executive functions, which include the ability to solve problems, self-regulate, and inhibit impulses to achieve goals (Pennington & Ozonoff, 1996). Several studies identified mechanisms of executive dysfunction in ADHD that are likely to contribute to increased risk-taking behavior. For example, in their review, Pollak and colleagues (2019) showed that ADHD individuals perceive the probability of positive outcomes as more likely than controls, have a preference for small immediate over large delayed rewards (delay aversion), and experience difficulty in using feedback for adapting choices to changing circumstances. Likewise, Dekkers and colleagues (2016) concluded that ADHD is characterized by altered reward sensitivity, through increased focus on gain and ignorance of possible losses (Scheres, Milham, Knutson, & Castellanos, 2007; Ströhle et al., 2008). Moreover, they found impulsivity, one of the core symptoms of ADHD, to be related to behavioral disinhibition, delay aversion and rushed decision making without careful consideration (Winstanley, Eagle, & Robbins, 2006).

Despite the evidence reviewed above, it is also important to note that recent studies and a meta-analysis (Dekkers et al., 2018) concluded that individuals with ADHD are not more prone to risk-seeking in general. Instead, they chose the risky alternative more often if it yields a lower return, whereas they perform similar to controls when the risky alternative yields similar or higher return (Dekkers et al., 2016). Hence, it seems risk-taking may also be, at least partly, due to suboptimal decision-making (Dekkers et al., 2018). In support of this notion, a recent study (Shoham et al., 2016) found that ADHD symptoms were related to more risky behaviors and perception of greater benefits from engaging in these behaviors, but were not correlated with risk perception. Moreover, the relation between ADHD symptoms and risk-taking behaviors was explained by perceived benefits. The authors thus concluded that individuals with high levels of ADHD symptoms tend to exhibit risk-taking behaviors because they perceive such behaviors as appealing, rather than because they feel the need to seek risk.

How can we then explain why many studies find increased risk-taking behaviors in individuals with ADHD? Dekkers and colleagues (2018) noted that in most tasks used to test risk-taking behavior, risk and expected value are confounded (risky options have the lowest expected value), making it impossible to differentiate between risky- and suboptimal- decision-making. To address this issue, they conducted two studies with the aim to differentiate between the risky- and suboptimal option. In their first study, they found that ADHD-subjects (n = 1144) and controls (n = 1108) differed if the risky option was suboptimal (with ADHD individuals choosing the more risky and more suboptimal option), whereas groups performed similar if the risky option was not suboptimal. In the second study, they showed that adults with ADHD (n = 40) made more suboptimal, but not riskier

choices than controls (*n* = 40). These results contribute to the growing body of evidence that decision-making deficits in ADHD are largely driven by suboptimal decision-making and not by risk seeking (Dekkers et al., 2018).

This suboptimal decision-making can be explained by the same executive functioning deficits mentioned above. Dekkers and colleagues (2018) mentioned three possible explanations in their study. First of all, working memory and behavioral inhibition (which are impaired in ADHD individuals) are needed to remember previous gains and losses and update values of the different alternatives accordingly, and to prevent one from choosing impulsively for the tempting but suboptimal alternative (Brand, Labudda, & Markowitsch, 2006; Brand et al., 2007). Alternatively, motivation could also explain suboptimal decision-making, because ADHD is related to altered reward sensitivity (Luman, Tripp, & Scheres, 2010; Sonuga-Barke, 2003), as they need higher amounts of reinforcement to perform optimally (Dovis et al., 2012). However, most laboratory risk-taking behavior studies in ADHD did not reinforce their participants (Dekkers et al., 2016), which may have led to underperformance in individuals with ADHD. Finally, one of the symptoms of ADHD is difficulty in investing mental effort (American Psychiatric Association, 2013). Individuals with ADHD may therefore prefer not to invest mental effort in calculating expected value and use easy decision-making heuristics instead (Dekkers et al., 2018).

In sum, the literature consistently shows that ADHD is associated to increased risk-taking behaviors, which could partially explain why individuals with ADHD engage in offending. The mechanisms responsible for increased risk-taking need to be studied more closely, but an increasing amount of literature points to suboptimal decision-making processes and increased reward sensitivity rather than risk seeking in individuals with ADHD. Hence, individuals with ADHD may not always be aware of choosing the riskier options that pave the way to offending. Jointly, these neurocognitive deficits may therefore negatively affect responsivity to treatment and treatment success in individuals with ADHD, as many aspects of treatment center on delayed rewards and have an uncertain expected value.

4.4.3 Personality and emotion regulation

Emotion regulation and coping. Several studies linked ADHD in offenders to poorer emotion regulation and coping with life stressors and related disorders. In a sample of 319 offenders, those diagnosed with ADHD (n = 68) reported more problems with emotional and social functioning and higher suicide risk scores (Westmoreland et al., 2010). Moreover, they had higher rates of mood, anxiety, psychotic, and somatoform disorders and were more often diagnosed with antisocial- and borderline personality disorders. A 10-year longitudinal study also found such increased vulnerability and emotionality in ADHD individuals (Harty et al., 2009). Although CD was the strongest predictor of physical aggression in individuals with ADHD, the ADHD symptoms itself were the most important contributors to increased verbal aggression and the emotional experience of anger. Hence, the authors suggested that such emotional dysregulation, especially in terms of anger, might be a characteristic common to ADHD and responsible for increased antisocial behavior, which is in line with previous studies (Biederman, 2004; Goodman, 2007).

Moreover, how individuals cope with adversity may also influence the relation between ADHD and offending. First, hyperactive-impulsivity indicates higher sensitivity to external stimuli and a greater likelihood of reacting to provocation without thinking first, as well as a lower likelihood of using legitimate coping strategies (Richardson, 2000). Moreover, inattention also hinders an individuals' ability to cope adequately with strain, as using appropriate cognitive coping requires a certain level of concentration. Furthermore, it has been hypothesized that ADHD leads to more stressful events, as many adults with ADHD live in a state of persistent chaos (Toner, O'Donoghue, & Houghton, 2006). In addition, it was found that the effect of negative life events on offending was higher among individuals with elevated levels of ADHD symptoms (Johnson & Kercher, 2007). This may thus suggest that strain can act as a moderator between ADHD and offending.

Emotional dysregulation (either by increased vulnerability/emotionality or by blunted emotional response to stress) and inadequate coping in the face of adversity may thus be potential moderators in the relation between ADHD and offending.

Low self-control. There is a wealth of studies supporting the relationship between the ability to control one's behaviors and later consequences related to offending. Individuals with low self-control have difficulties inhibiting deviant behavior and resisting immediate gratification (Pratt &

Cullen, 2000), which are important risk factors for involvement in antisocial behaviors (Fine et al., 2016). According to Barkley and Biederman (1997), ADHD is essentially a problem of low self-control. The executive brain functions that are critical for developing self-control and directing behavior towards future goals appear to be impaired in individuals with ADHD (Barkley, 1997). Hence, the relation may be tautological rather than causal, as they might both be measurements of the same underlying construct (i.e., low self-control) (Aguilar-Cárceles & Farrington, 2017; Gottfredson & Hirschi, 1990). Correspondingly, when investigating the association between low self-control and ADHD in explaining antisocial behavior in a college sample, Schoepfer and colleagues (2018) found an association between low self-control and ADHD and that they predicted offending in similar ways, but the precise nature of the relationship between the concepts remained uncertain.

The aforementioned studies support the role of self-control on the relation between ADHD and offending, but controversy remains whether low self-control is essentially inherent to both ADHD and antisocial behavior itself.

Impulsivity. Impulsivity is closely related to the concept of low self-control, and is a core symptom of ADHD (APA, 2013). Impulsivity is one of the risk factors that is most strongly linked to offending (Farrington et al., 2015; Lynam et al., 2000), either directly or indirectly. The direct influence is typically observed in situations where individuals act without thinking first and experience difficulty in controlling their behavior. Indirectly, impulsivity can lead to higher levels of social rejection because the impulsive behavior is considered aversive and inappropriate by the environment. Additionally, impulsivity may lead to problems in school or the workplace. Hence, because impulsive individuals are less likely to succeed in conventional ways, the likelihood of turning to a criminal career increases (Aguilar-Cárceles & Farrington, 2017). In accordance with that assumption, impulsivity has been found to mediate the relation between ADHD and offending in youths (Carlotta et al., 2011).

Likewise, studies investigating the relation between ADHD and violence often find ADHD to be related to reactive, impulsive violence, rather than proactive, premeditated violence (Gonzalez et al., 2016; Retz & Rosler, 2010). Reactive violence is an unplanned and spontaneous reaction to a provocation or conflict. According to Retz and Rosler (2010: 196) "it is driven by affective outbursts, is short-lived, and has no finalistic target except the reduction in tension and agitation". Such findings suggest that ADHD may be a risk factor for impulsive types of offending, instead of premeditated and proactive types of offending.

Moreover, several studies find that the influence of impulsivity on offending is mediated by neighborhood context (Lynam et al., 2000). To be more specific, the effect of impulsivity on offending is stronger in poorer neighborhoods (Lynam et al., 2000). It is hypothesized that this is due to lower levels of social control, which are more typical for socioeconomically disadvantaged neighborhoods (Sampson & Groves, 1989; Sampson, Raudenbush, & Earls, 1997). Low levels of external social control increase the opportunity for offending (Cohen & Felson, 1979) and may especially be missed by those who have fewer internal controls and can thus be defined as impulsive (Henry et al., 1996). In fact, there is evidence to suggest that low neighborhood social control and social cohesion may play a key role in the relation between neighborhood poverty and offending (Sampson et al., 1997).

To conclude, research has found considerable evidence to suggest that impulsivity is a risk factor for offending in ADHD, and that its impact on offending can be mediated by environmental factors.

4.4.4 Social risk factors

In addition to the interaction between individual risk factors and adverse environment as discussed above, weak family bonds and other weak social ties have been identified as important predictors of offending in individuals with ADHD (Rosler et al., 2004). Considering the similarity in correlational patterns with environmental adversity for both antisocial behavior and ADHD, it may be that such adversities (partially) account for the progression from ADHD to antisocial behavior (Thapar et al., 2006). In addition to parent-child relationship problems, factors such as educational marginalization, and deviant peers are associated with decreased levels of social control, which may increase the risk for antisocial behavior in adulthood (Rutter et al., 1998; Sampson & Laub, 1993; Simons, Simons, & Wallace, 2004). In the next sections, we will discuss how these two domains may relate to the association between ADHD and offending.

Intellectual deficits and academic achievement. Intellectual deficits and low academic achievement have been commonly associated with higher levels of offending, regardless of a variety of demographic, cognitive, and behavioral factors (Hirschi & Hindelang, 1977; Lynam, Moffitt, & Stouthamer-Loeber, 1993; Lynam et al., 2009). Moreover, ADHD symptoms are strongly related to poor academic performance (Hinshaw, 1992b; Massetti et al., 2008) and learning problems (Gaub & Carlson, 1997; Loe & Feldman, 2007).

Impaired cognitive ability has been found to be a likely risk factor for offending in ADHD (Farrington et al., 1990; Mohr-Jensen & Steinhausen, 2016). Symptoms related to inattention and hyperactivity lead to difficulty succeeding in an academic environment (Rodriguez et al., 2007), which contribute to academic marginalization, which in turn can have far-reaching consequences for later socioeconomic attainment (Rosler et al., 2004). Lower socioeconomic attainment increases chances of choosing a criminal career (Pratt, Barnes, Cullen, & Turanovic, 2016). Interestingly, a study by Defoe, Farrington, and Loeber (2013) investigated causal mechanisms between hyperactivity and offending and revealed that hyperactivity and low socioeconomic status (SES) caused low achievement, which in turn caused offending and in turn predisposed to depressive symptoms. Hence, they conclude that, since low achievement had the most direct influence on offending, interventions should target low achievement rather than hyperactivity or SES (Defoe et al., 2013), for example through interventions at school. Moreover, a recent cross-sectional study (Bramham & Giollabhui, 2016) tested the relationship between ADHD and offending after controlling for IQ and other important confounders. They included 118 participants with ADHD in their sample and divided them into groups of offenders (n = 44) and non-offenders (n = 74). They found that the relation between ADHD symptoms and offending behavior did not hold when controlling for IQ. Similarly, Scully and colleagues (2014) included 73 participants with a diagnosis of adult ADHD in their study, and divided them into groups of offenders (n = 30) and non-offenders (n=43). They found a difference in IQ between the offending and non-offending group, which was in line with previous research suggesting there is a negative relationship between IQ and offending behavior (Bartels et al., 2010; Lynam et al., 1993). However, cognitive ability was not a predictor of offending in this study. The authors suggest this may have been due to range restriction, as the sample over all were in the average to high average range (Scully et al., 2014).

Two other studies (Savolainen et al., 2010; Savolainen et al., 2015) also found that the association between ADHD and offending was stronger for those with low academic achievement and cognitive deficits, specifically low verbal ability. They explained that their finding is in line with Moffitt's theory of life-course-persistent offenders (Moffitt, 1993b), which describes a group of offenders with an early onset of antisocial behavior and persistent antisocial behavior throughout their life. Amongst others, the theory states that neuropsychological deficits, such as ADHD, are responsible for developing antisocial behavior in life-course-persistent offenders by eliciting negative transactions with their environment (Moffitt & Caspi, 2001).

Finally, not only academic functioning is likely to impact the link between ADHD and offending. Subsequent occupational functioning may also contribute to this relation. Unemployment rates are relatively high among individuals with ADHD (Kessler et al., 2006). Moreover, individuals with ADHD are more likely to quit their job due to boredom and are at increased risk for getting fired because of problems in the workplace, such as getting along with others and managing responsibilities (Murphy & Barkley, 2007). As with academic failure, job failure is likely to increase chances offending (Pratt et al., 2016).

To summarize, research supports the notion that impairments in cognitive abilities and academic or occupational functioning are important risk factors in the relation between ADHD and offending, likely through socioeconomic marginalization and increased experiences of frustration.

Deviant peer associations. Association with delinquent or deviant peers can contribute to risk for offending both directly and indirectly by inducing a high-risk lifestyle (Garnier & Stein, 2002; Hawkins, Catalano, & Miller, 1992; Warr & Stafford, 1991). Gudjonsson and colleagues (2014) investigated the relation between ADHD and offending in a sample of 11,388 students. In this study, ADHD symptoms correlated significantly with peer delinquency with a moderate effect size ($r = 0.33$). The authors speculated that as offenders with ADHD are found to be more compliant than other offenders (Gudjonsson et al., 2008), they are more susceptible to deviant peer influence. Moreover, peer delinquency contributed strongly to the variance in offending in the final regression models ($\beta = 0.28$ for non-violent offending; $\beta = 0.16$ for violent offending), suggesting that having delinquent friends strongly increases the likelihood of offending, which is in line with previous research (Farrington et al., 1990).

Several studies in childhood and adolescence have also associated ADHD with poorer social skills, higher rejection and problematic peer relationships (Pardini & Fite, 2010; Whalen & Henker, 1992), which may in turn contribute to the development of antisocial behavior (Savolainen et al., 2010). In adulthood, one study found that individuals with ADHD reported more impulsive reactions to social provocations, which may place much strain on social relations (Ramirez et al., 1997). That is, they showed that individuals with ADHD scored higher than others on the interpersonal sensitivity scale of the SCL-90-R, which entails feelings of personal inadequacy and inferiority. This finding was consistent with prior research suggesting that individuals with ADHD indeed experience difficulty in relationships (Weiss & Hechtman, 1993; Wender, 1998).

To conclude, ADHD may undermine social ties to each of the aforementioned domains of informal social control: school/academic institutions, family, and peers. According to Savolainen and colleagues (2010) such weak ties may contribute to offending both directly and indirectly through the facilitating effect of involvement in a delinquent lifestyle.

4.5 Discussion

ADHD is overrepresented in forensic psychiatric populations and prisoners. To understand why ADHD is so common in these groups and to design appropriate treatment for offenders with ADHD, it is important to gain knowledge of risk factors that predispose individuals with ADHD to offending. Hence, we aimed to review dynamic risk factors that can explain the association between ADHD and offending. Overall, the relation between ADHD and offending is not clear-cut. To understand the mixed findings on the link between ADHD and offending, research should take into account that individuals with ADHD are a heterogeneous group. In the current review, we provided more insight into dynamic risk factors that may shed more light on the conditions under which ADHD is related to offending.

Although some studies showed that ADHD itself is a risk factor for offending or related behaviors, other studies showed that this association is often explained by or dependent upon other factors. First, findings suggest that offenders with ADHD constitute a different group from those with ADHD-only without antisocial behavior (Lilienfeld & Waldman, 1990), with different developmental patterns. In line with Moffitt's notion of life-course-persistent offenders, individuals characterized by ADHD are at increased risk for antisocial behavior (Moffitt & Caspi, 2001). This risk increases over the lifespan due to negative interactions with adverse contextual factors, such a poor parenting and deviant peer affiliation (Moffitt, 2003). Jointly, such negative transactions between youths and their family may place youths on a developmental path that predisposes to offending. As several studies that we reviewed illustrated, individuals with ADHD show also poorer social relationships later in life, which may predispose to deviant peer affiliation, and poorer educational and occupational attainment. Together, these interactions and outcomes pave the way to offending and decrease the chances of staying or getting back on a more positive developmental pathway (Wojciechowski, 2017). Because pathways of offending for individuals with ADHD start early, it is important to identify individuals at risk early in life and provide them with appropriate prevention programs.

Second, the risk factors identified in this review can be considered dynamic and thus susceptible to change. This provides interesting starting points for designing appropriate treatment interventions for offenders with ADHD. For example, treatment should focus on treating comorbid disorders, both those from the antisocial spectrum and substance use disorders. Leaving such comorbid disorders untreated would not only increase chances for offending but could also potentially hinder progress in the treatment of ADHD symptoms. Moreover, many studies indicated that the link between ADHD and offending is often due to risk-taking, poor decision-making, low self-control, and impulsivity. Research suggests that individuals with ADHD are more likely to take risks and act on their impulses, which increases chances for offending and related behaviors (Dekkers et al., 2018; Pollak et al., 2019). Therapists could focus on teaching patients to monitor and regulate their behavior and provide ways to enhance positive decision-making. From the literature, it is also suggested that impaired decision-making is related to difficulties in coping with strain (Johnson & Kercher, 2007). Importantly, ADHD symptoms often bring about environmental stressors that increase the likelihood of risk-taking behaviors (Schoenfelder & Kollins, 2016) that produce adverse consequences. This could mean that patients with ADHD need to take steps to reduce strain and learn adequate coping strategies for dealing with adversity.

Moreover, the current review also points to the importance of social factors, such as parenting behaviors and deviant peer affiliation (Mohr-Jensen et al., 2019; Schoepfer et al., 2018). Therefore, therapy programs could include systemic approaches in which therapists and patients

discuss the social network of the patient and whether certain relatives either have a positive or negative influence on the patient's lifestyle and behavior. This could also mean involving important relatives in the therapy, to work on building a support system for the patient, which can be of great importance for both stimulating treatment progress and preventing relapse after treatment (Ward & Brown, 2004). As such, it is essential to discuss the interplay between ADHD symptoms and the social context, as one factor evokes responses from the other. Future research should further investigate whether and how the aforementioned risk factors can be used as treatment targets when treating forensic patients with ADHD.

Although the current review focused on dynamic risk factors, it is important to note that static risk factors may play a role in how individuals with ADHD respond to contextual stressors across the lifespan and as such increase or decrease the risk of offending. Here, we highlight two important static risk factors that may inform therapists and policy makers about individuals that are at a higher risk of offending and for whom the dynamic risk factors we discusses may play out differently. First, maltreatment history is a key factor that is often overlooked in research on the relation between ADHD and offending. Yet, several prospective studies have reported a strong link between a history of childhood maltreatment and later antisocial behavior (e.g., Cicchetti & Manly, 2001; Smith, Ireland, & Thornberry, 2005). More recently, a study found that arrest rates in young adulthood were higher in youths with ADHD who had a history of maltreatment compared to those who did not (De Sanctis et al., 2012).

A second relevant issue to consider is that both ADHD (Bobb et al., 2006) and antisocial behavior (Rhee & Waldman, 2002) are in part determined by genetic influences. Several twin studies also suggest that antisocial behavior and ADHD are influenced by similar genetic variations (Nadder et al., 2002; Silberg et al., 1996). This means that the association between ADHD and antisocial behavior may in part be explained by shared genetic risk factors. Moreover, some studies suggest that ADHD in combination with antisocial behavior is a more severe form of ADHD in terms of genetic loading (Thapar, Harrington, & McGuffin, 2001), and that this subgroup has greater heritability and thus be more likely than ADHD without comorbid antisocial behavior (Faraone, Biederman, & Monuteaux, 2000).

4.5.1 Limitations and future research

An important limitation is the complexity of the field of ADHD and offending, due its size and focus. To illustrate, most studies on ADHD and antisocial behavior have focused on children and adolescents. On a theoretical level, these studies provide important information about developmental precursors of adult offending, but most studies did not empirically link these precursors to adult offending. Therefore, we decided that these studies were beyond the scope of this review. As a result, we may have missed information about dynamic risk factors that originate early in life but predispose to offending later in life. Moreover, we only included English-language studies that were published in peer-reviewed scientific journals, which were thus under the scrutiny of experts in the field. This approach may lead to a file-drawer bias, which suggests that studies with non-significant findings have a lower likelihood of being published and thus end up at the bottom of one's drawer. Finally, our selection of studies was limited in the sense that it mostly captured US populations of offenders with ADHD (symptoms). Therefore, not all of the insights from this review may translate to populations in Europe or other world regions.

Future research should thus replicate the findings from studies included in this review, as many risk factors have not been investigated thoroughly and possibly other risk factors may arise from further investigation. Nonetheless, at this point it seems even more important to start designing evidence-based treatment programs specifically tailored to offenders with ADHD. Research on this topic is still extremely scarce and the only treatment specifically designed for this population has not been thoroughly researched yet. To our knowledge, only the R&R2ADHD program (Ross, Fabiano, & Ewles, 1988; Young & Ross, 2007) was adapted to the needs of patients with ADHD in forensic populations. However, there is no strong evidence base for the effectivity of various modules of by this program. There is thus an urgent need for designing appropriate and evidence-based treatment programs. To this end, we argue that it is important to take risk factors identified in this review into account when designing treatment interventions, as they could be used as treatment targets for reducing the risk for (re-)offending. Moreover, research into responsivity factors of forensic patients with ADHD is needed. To design an appropriate treatment program, knowledge on capacities and preferred learning styles of the population is essential. For example, individuals with ADHD often find it challenging to stay focused for long periods of time, which means therapy session length should

be adapted to their capacities. Moreover, introducing a different reward-structure with explicit small rewards in the short-term may keep individuals with ADHD motivated to stay in treatment.

4.5.2 Conclusion

Although it remains a point of debate whether ADHD by itself constitutes a risk factor for offending, it is clear that ADHD is overrepresented in forensic populations and that ADHD is often accompanied by various risk factors for offending. Reviewing the literature, we identified various dynamic risk factors for offending in ADHD. These include comorbid disorders from the antisocial spectrum, substance use disorder, risk-taking behavior, low self-control, impulsivity, emotion dysregulation and poor coping, poor parenting, and deviant peer affiliation. These dynamic risk factors may represent valuable opportunities for change when targeted through treatment programs. However, to date, such evidence-based treatment programs specifically designed for offenders with ADHD are lacking. The current review provides starting points for future research aimed at designing treatment programs to reduce (re-)offending in individuals with ADHD.

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5. Responsivity factors related to treatment of offenders with Attention-Deficit/Hyperactivity Disorder (ADHD): Perspectives from the literature, patients, and therapists

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5.1 Abstract

Forensic patients with ADHD represent a large part of the offender population, but treatment is often challenging due to ADHD symptoms (impulsivity, attention deficits) and comorbid problems (substance use, antisocial personality). Therefore, the current aim was to gain more insight into responsivity of forensic patients with ADHD to tailor treatment programs to patients' needs. To this end, perspectives from the literature, forensic patients, and therapists were examined on responsivity in treatment of patients with ADHD. A systematic review of a handful of studies inidicated that pharmacotherapy, cognitive therapy and psychoeducation were effective in treatment of forensic patients with ADHD, amongst others by decreasing no-shows. Moreover, in-depth interviews with forensic patients with ADHD and their therapists showed that especially psychoeducation and pharmacotherapy increased responsivity and treatment characterized by a strong therapeutic alliance, clear structure, and short-term reward incentives proved to be effective. In addition, involving or strengthening supportive social networks and increasing socio-economic stability were seen as important ways to keep patients in treatment and reduce the risk of reoffending. Insights from these three perspectives provide important input for strengthening treatment in forensic patients with ADHD and enhancing treatment responsivity.

Keywords: Treatment; Offenders; Recidivism; Responsivity; ADHD

5.2 Introduction

The Risk-Need-Responsivity (RNR) model by Andrews, Bonta, and Wormith (2006) is one of the most commonly used and most successful approaches for treatment in forensic settings (Dowden, Antonowicz, & Andrews, 2003; Lowenkamp, Latessa, & Holsinger, 2006). The RNR model posits that the length, intensity, and focus of treatment should be adapted to patients' risk profile (the Risk principle), the criminogenic risk factors that are related to the crime (the Need principle), and the treatment needs of patients (the Responsivity principle). Hence, patients with a heightened risk profile are likely to receive longer and more intensive treatment, and treatment should focus on risk factors related to the committed crime(s). Moreover, patients differ in the extent to which they respond to and favor certain treatment modules. Treatment plans must respect general principles of responsiveness and thus need to be tailored to patients' specific responsivity.

The principle of 'responsivity' suggests that treatment is more effective when the intervention takes into account the individual traits or risk factors of offenders that affect how they 'respond' to the style in which the treatment is delivered. In the RNR model, two types of responsivity are distinguished, i.e., general and specific responsivity (Bonta & Andrews, 2007). General responsivity refers to the use of cognitive social learning methods to influence behavior and pertain to strategies for offenders in general. For example, the use of evidence-based treatments that focus on positive reinforcement and skills training often outline skills represented in a cognitive social learning approach. Specific responsivity refers to tailoring treatment to the individual offenders by taking into account patients' strengths, learning style, personality, and motivation. Although these aspects were first laid out in more detail in the Good Lives Model (GLM; Ward & Brown, 2004), in more recent adaptations, these responsivity factors are also essential in the RNR model (Andrews, Bonta, & Wormith, 2011). Generally, there is limited knowledge about specific responsivity factors for the treatment of offenders. However, over the past few years, there has been a call for research that examines which responsivity factors affect forensic treatment for specific target groups (Bonevski et al., 2014; Ellard-Gray, Jeffrey, Choubak, & Crann, 2015; Woodall, Morgan, Sloan, & Howard, 2010). Often, this concerns groups that are at increased risk for poor treatment adherence (e.g., no-shows or dropout) or poor treatment success due to psychosocial and psychiatric problems. Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the disorders that is commonly associated with poor treatment outcomes (Kooij et al., 2010), due to heightened risk of drop-out and no-show during treatment (Stoel et al., 2018; Woicik et al., 2017). This poor treatment adherence and treatment readiness reduces patients' treatment success and increases recidivism risk. However, to date, current treatment programs in forensic care are often adapted insufficiently to the specific needs of patients with ADHD, especially regarding learning styles and –problems, and other incapacities specific to ADHD, such as poor executive functioning, emotion regulation deficits, and comorbidities (Barry & Gaines, 2008; Young & Goodwin, 2010; Young et al., 2018). It has thus been suggested that offenders with ADHD would be more responsive to interventions that are delivered with clear expectations, in a structured format, and do not require sustained attention for long periods of time (Pratt et al., 2002). However, research on treatment for forensic patients with ADHD is extremely scarce, let alone research on specific responsivity factors, such as learning styles and motivation.

Importantly, increased prevalence rates of ADHD among offenders combined with the lack of treatment responsivity signal a need for investigating treatment needs of forensic patients with ADHD. Successful treatment will likely contribute to reducing the risk of reoffending (Barry & Gaines, 2008). Hence, gaining more insight into the responsivity of forensic patients with ADHD is necessary to tailor treatment program to patients' needs, both criminogenic and non-criminogenic, and is the focus of this study. In this study, we provide three perspectives on responsivity in treatment of offenders with ADHD. First, we provide an overview of the current scientific knowledge on treatment for this population based on a literature review. Additionally, we conducted in-depth interviews with forensic patients with ADHD and their therapists, respectively, in which we ask for their perception on current treatment in forensic care, to what extent they feel that this approach is adapted to patients' responsivity needs, and how treatment could be improved.

5.3 Method

5.3.1 Literature review

To review the current state of knowledge on treatment for ADHD, we conducted a review of the literature following the PRISMA guidelines (Moher et al., 2009). In several online databases, including Web of Science, PsycINFO, PubMed, ScienceDirect, and Google Scholar, we used Boolean Operators and the following search terms: "Attention-Deficit/Hyperactivity Disorder" or "Attention Deficit Disorder" or ADHD, and treatment or intervention or therapy or training, and forensic or delinquen* or offend* or crim*. In addition, the following search terms were combined: "Attention-Deficit/Hyperactivity Disorder" or "Attention Deficit Disorder" or ADHD, and responsivity or "treatment success", and forensic or delinquen* or offend* or crim*. The search queries were conducted between March 26, 2019 and May 23, 2019. Using these approaches, yielded 733 records (see Figure 1). After removing duplicates, we screened 551 studies, of which 155 were eligible. Based on reading the articles, 10 focused specifically on treatment (responsivity) of adult forensic populations with ADHD or ADHD symptoms and were included in the review. After selection, studies were categorized into studies that focused on pharmacological therapy, psychotherapy, and treatment adherence.

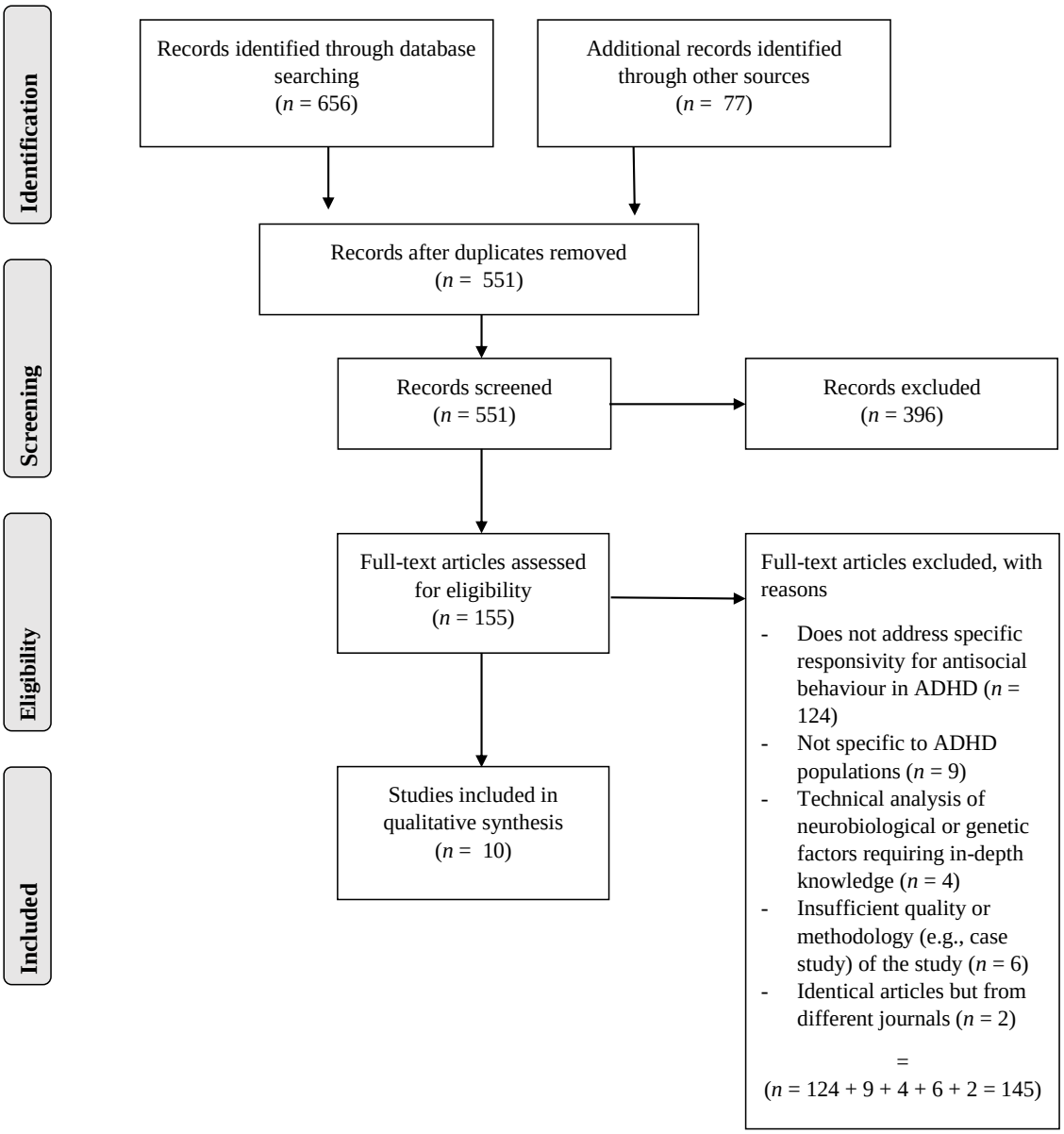

Figure 1. PRISMA flow diagram of the systematic literature review.

5.3.2 In-depth interviews

Patients. Ten forensic patients with ADHD were recruited from a forensic outpatient center in the Netherlands. In this outpatient center, patients with ADHD receive treatment for their ADHD-symptoms, comorbid psychiatric disorders, and related aggressive or delinquent behavior. The main goal of treatment is reducing the risk of (re-)offending. Patients are either treated compulsory as part of a juridical measure, or they are in treatment voluntarily after referral by a general practitioner or other mental health care professional. All patients are at risk for (re-)engaging in aggressive or unlawful behavior.

Treatment is provided in a multimodal treatment program, designed in four subsequent phases. Patients always start in a diagnostic phase, targeting the neurobiological developmental disorders. When patients are too unstable for diagnostic interviewing, or vulnerable due to a psychiatric crisis, a pre-treatment module aimed at stabilization is offered (phase 0). After the systematic assessment of ADHD and other developmental disorders, patients receive psychoeducation on ADHD and its relation to externalizing behavior. Subsequently and in the third phase, patients receive cognitive-behavioral therapy for aggressive or delinquent behavior. Finally, schema-focused therapy aimed at personality problems is optional if indicated. Patients can skip treatment phases if indicated, and the treatment program can be complemented by various 'side modules' such as pharmacotherapy, support for social-, financial-, work-related, or daily-routine problems, and treatment for comorbid substance-use disorders.

Inclusion criteria for this study were being 18 years or older, having an ADHD diagnosis, and no diagnosis of intellectual disability. Other comorbid disorders were not used as exclusion criteria for this study.

Therapists. Eleven therapists were invited to take part in the interviews. All therapists, except one, were currently involved in treatment of the patients we interviewed. Two therapists were involved in the treatment of two patients. Most therapists at the outpatient center were psychologists and saw patients during therapy sessions aimed at psychoeducation and cognitive behavioral therapy. One therapist was a psychiatrist.

Procedure. The procedure of this study was conducted in accordance with the American Psychological Association's ethical guidelines and approved by the local Institutional Ethical Review Board at Tilburg University (EC-2015.38a4). Therapists at the treatment center received both a written and oral briefing about the research procedure and the selection criteria for participants. Subsequently, therapists were asked to select one of the patients from their caseload who met the criteria and invite this patient for participation. Patients who were interested in participating received an information letter about the study's aim and procedure, and were contacted to plan a research appointment at the outpatient center. Patients were informed that participating in the study was voluntarily and that they could withdraw from the study at any given moment, without providing a reason for withdrawal and without affecting their treatment. Participation included one research appointment of approximately one hour, in which patients were interviewed by the second author. The semi-structured interview consisted of 45 questions focusing on treatment content, satisfaction about treatment, responsivity, and risk for reoffending. Prior to the interview, patients signed written informed consent and were asked for permission for taking an audio recording of the interview. Patients received a gift voucher of 20 euros for participation. Patients were also explicitly asked for permission for a subsequent and complementary interview with their therapist, which was planned after the interview with the patient took place. Therapists were informed that their participation was voluntarily and that they could withdraw from participation at any given moment, without providing a reason for doing so. Prior to the interview, therapists signed written informed consent and were asked permission for taking an audio recording of the interview. Participation for therapists included one research appointment of approximately 30 to 45 minutes, in which they were interviewed by the second author. This semi-structured interview consisted of 29 questions focusing on treatment responsivity and reoffending risk. Therapists received a gift voucher of 10 euros for participation. Data collection took place from October 2019 to January 2020.

5.4 Results

5.4.1 Perspectives from the literature

Because antisocial behavior and aggression usually develop from an early age, many preventive programs are aimed at decreasing behavioral problems during childhood or adolescence (Belcher, 2014). However, in the current review, we focus on treatment for adult offenders with ADHD that reduce the risk of re-offending. Treatment interventions for offenders are often based on the Risk-Need-Responsivity (RNR) model. For adults, most ADHD treatment guidelines recommend a multimodal treatment approach (MTA), starting with pharmacological treatment to reduce ADHD symptoms and to enhance compliance with the subsequent psychotherapeutic or psychosocial interventions (Ginsberg et al., 2013). We thus start with the discussion of pharmacological interventions, followed by psychotherapeutic interventions. Finally, we discuss treatment adherence.

Pharmacological interventions. Many pharmacological interventions focus on methylphenidate aimed at reducing core symptoms of ADHD, such as impulsivity and attention deficits. A large Swedish study included 25,656 patients with ADHD diagnosis and used the Swedish national registers to gather information on their pharmacologic treatment and subsequent criminal convictions in Sweden from 2006 through 2009 (Lichtenstein et al., 2012). They found that, compared to non-medication periods, patients receiving ADHD medication showed on average a significant 32% reduction in criminality rates for men and 41% for women. Sensitivity analyses among men showed that the reduction rate was between 17% and 46% after accounting for different types of drugs (e.g., stimulants versus non-stimulants) and outcomes (e.g., type of crime).

Moreover, two Randomized Control Trial (RCT) studies including prisoners who received methylphenidate treatment found a reduction in both the number of ADHD symptoms and symptom severity (Ginsberg & Lindefors, 2012; Konstenius et al., 2014). Within-patient analyses revealed that participants reported improvements in global and executive functioning, behavioral control, and quality of life (Ginsberg & Lindefors, 2012). At three-year follow-up, participants who continued ADHD medication reported significantly less observer- and self-rated symptoms, less reoffending, and less alcohol and drug use compared to participants who stopped taking the medication (Ginsberg et al., 2015). In the second study, which included prisoners who were amphetamine-dependent, participants receiving methylphenidate had significantly less drug-positive urine screenings (Konstenius et al., 2014). Moreover, they were significantly more likely to remain in treatment for the whole 24-week trial.

In sum, despite the scarcity of pharmacological studies in forensic samples with ADHD, studies show promising results with positive effects of ADHD medication on reductions in crime, ADHD-related symptoms, alcohol use, and treatment adherence.

Psychotherapeutic interventions. Young and Ross (2007) adapted the "Reasoning and Rehabilitation" (R&R; Ross, Fabiano, & Ewles, 1988) program to the needs of offenders with ADHD. The program centers on thoughts leading to offending and aims to restructure thoughts and behavior through cognitive skills training. The original R&R program has been shown to lead to a significant 14% reduction in general recidivism in samples of offenders, according to a meta-analysis (Tong & Farrington, 2008). The adapted version, called R&R2ADHD, is thus far the only psychotherapeutic intervention specifically developed for offenders with ADHD. It consists of both individual and group sessions aimed at decreasing impairments of symptoms associated with ADHD, such as poor attention regulation, impulsivity, and hyperactivity. Furthermore, the goal is to improve social and organizational skills. Treatment modules encompass learning strategies to improve attentional control, memory, impulse control, and planning as well as problem solving skills, emotion regulation skills, prosocial skills, such as empathy, recognition of own thoughts and feelings, and conflict resolution and critical reasoning skills.

In a trial of personality-disordered offenders, the R&R2ADHD intervention had a beneficial effect on impulsivity, arousal, and anger, which are all predictors of violence in offenders with ADHD (Young et al., 2017). Moreover, in one RCT, the effectiveness of R&R2ADHD was compared with psychopharmacological treatment only in 54 non-offending individuals with ADHD (Emilsson et al., 2011). At three-month follow-up, the R&R2ADHD group reported significant reductions in ADHD symptoms and antisocial behavior, and showed improved emotional control and social functioning. However, to date, no studies have been conducted in offenders with ADHD and thus these results should be interpreted with care.

More recently, one study examined the effects of pharmacotherapy and psycho-education (and in some cases additional coaching) in 210 intimate partner violence (IPV) offenders with ADHD (Buitelaar et al., 2020). In addition, offenders followed partner relation therapy and skills training to reduce intimate partner violence. Treatment spanned one year and took place in an outpatient setting. The authors showed that both self-reported IPV and ADHD decreased, and that changes in IPV were due to the decreases in ADHD. This suggests that treating ADHD symptoms may also be associated with decreases in offending.

Treatment non-compliance in offenders with ADHD. Offenders with ADHD are at increased risk for poor treatment adherence (e.g., no-show or dropout; Stoel et al., 2018; Woicik et al., 2017; Young et al., 2015), which may affect treatment responsivity. In a study including 118 male offenders with ADHD who were receiving treatment in an outpatient setting, 86% missed at least one appointment during the one-year study period. On average, participants missed 7 out of 38 appointments during the trial. However, medication seemed to improve compliance, as patients on ADHD medication had lower rates of no-show (Woicik et al., 2017). Another study from the same group investigated the extent to which disorder specific symptoms and general well-being of forensic patients with ADHD were related to no-show rates (Stoel et al., 2018). They included 60 male forensic patients who were receiving treatment in an outpatient setting that specialized in ADHD treatment. The findings revealed that patients with high no-show rates (15-45% missed appointments) reported more ADHD symptoms compared to patients with low no-show rates (0-14.9% missed appointments). Additionally, they found that rule-breaking, externalizing problems, and somatic problems were related to higher no-show rates, whereas anxiety problems were associated with lower no-show rates. Hence, the authors concluded that the amount of no-show in forensic patients with ADHD is related to specific psychopathological symptoms.

To summarize, pharmacological and psychotherapeutic interventions for offenders with ADHD seem promising, but due to the lack of studies, conclusive assessments about treatment programs and responsivity is not yet possible.

5.4.2 Patient perspective

General information. In total, 10 patients (1 female, 9 males; M age = 40.8 years, range = 23 to 57 years) provided their view on treatment responsivity. All patients were diagnosed with ADHD with comorbid problems related to substance abuse, anxiety, or personality problems. Most patients were following individual treatment (cognitive behavioral therapy), sometimes in combination with medication use (n=6) for ADHD, depressive problems, or sleep problems. Patients were in treatment ranging from a few months to several years. Notably, many patients used marihuana on a daily basis as a form of self-medication. Without exceptions, patients were intrinsically motivated for treatment, even the patients who were court-ordered to follow treatment. Many patients indicated that their motivation came from a desire to get their life back on track for themselves and their family or because they did not want to feel depressed anymore, wanted to be rid of their substance dependency, their financial problems, or a combination thereof. Their motivation also showed in the fact that all patients hardly ever missed a therapy session and were generally on time for their therapy sessions, which applied to both patients who were voluntarily in treatment and those who were court ordered.

Treatment satisfaction. Patients were very satisfied with the treatment they received for a number of reasons. Patients appreciated the personalized approach, high degree of autonomy in shaping one's treatment, being regarded as equal to the therapist, and to have the ability to receive treatment when the need is high. Some patients (n=3) had also followed group therapy in the past, but experiences were more mixed. One patient indicated that patients had a negative influence on each other and reinforced bad habits (e.g., substance use), and other patients mentioned that it dragged on too long, or that therapists were reluctant to deviate from the protocol to accommodate individual needs. At the same time, several patients indicated that group therapy made them realize that there are also others with similar problems.

Another issue that stood out was that every patient was satisfied with the relationship and contact with their therapist. Patients valued that therapists were open, honest, challenging and critical at times, knowledgeable on the topic of ADHD (in one case also by expert experience), actively listened to the patient, and treated them in a respectful manner. In particular, this last asset was essential as many patients experienced feeling stigmatized, labeled, and seen as crazy by others for being in

treatment. One patient stated: 'She didn't see me as a professional criminal or someone like that. She really sees you as a person.' For this reason, several patients (n=7) also indicated that they appreciated the non-judgmental attitude of the therapist, which was something that they did not always perceive in other mental health care settings.

Responsivity. In terms of responsivity, most patients indicated that they preferred a personalized approach. Notwithstanding the importance of this, there were also a few common themes that were identified. For one, support from the social environment (or the lack thereof) was a recurrent theme that enhanced commitment to treatment and staying in treatment. In fact, in one case, the partner always accompanied her husband to the center and helped him to memorize what was said during treatment. As one patient phrased it: 'I always say, if you don't receive any love, you'll go crazy in the end. I am convinced that every human on this planet needs love.' By the same token, patients who lacked social support mentioned that this complicated treatment effectiveness and progress significantly. Quite a few patients (n=6) were unemployed and were only modestly engaged in social interactions, seemingly increasing feelings of depression and social anxiety. Interestingly, several patients also mentioned that the key to success is being honest to yourself and the therapist. For some, it also helped them to realize that ADHD symptoms explained many of their problems and behavior.

Patients also identified several practical solutions that helped them during treatment. Some patients appreciated being sent a text message to remind them of the therapy session, and many patients indicated that it helped when information was visualized, repeated, or when they could take pictures of the explanations on the board during therapy sessions. Some also indicated that they preferred having therapy sessions early during the day. Because they typically wake up early, they are more in control in the mornings and later during the day they are under influence of substances or are more agitated.

Regarding the institution, patients were unanimously positive about the cleanliness, atmosphere, and reception at the treatment location. Moreover, patients appreciated the swift communication within the institution and short lines with the therapists. However, two patients indicated that they did not like it that they had to share the waiting room with 'people who are clearly crazy' and sex offenders. For these patients, this added to their agitation and led to many negative thoughts.

Reoffending risk. We also asked patients to reflect on factors that increased or mitigated the risk of reoffending. Many patients mentioned that affiliation with deviant social networks is an important risk factor for reoffending. However, most indicated that negative social networks were more problematic (and present) when they were younger. As a coping mechanism, many (n=7) stayed away from risky contexts (e.g., do not go into the city, to bars or clubs). Three patients also mentioned that they would be at risk of reoffending if important social support would fall away (e.g., parents, partner). Some patients also saw ADHD as a risk factor for reoffending, especially the heightened levels of impulsivity and sensation seeking, but others are more skeptical about ADHD being a risk for their reoffending. At the same time, most patients indicated that alcohol or drug use (as a result of impulse behavior) was a significant risk factor.

5.4.3 Therapist perspective

General information. In total, 11 therapists took part in the interviews. All therapists had worked for several years at the forensic outpatient center, ranging from 1.5 years to 11 years. Most therapists also had experience with other patient groups, either from a previous organization or because they were also involved in treatment of patients with substance abuse or another developmental disorder (e.g., Autism Spectrum Disorder). Without exception, all therapists enjoyed working with patients with ADHD, because of the dynamic and energetic interaction with patients and their good sense of humor. At the same time, treatment was experienced as challenging due to the high level of impulsivity, the difficulty to keep treatment structured, comorbid problems (e.g., substance abuse, personality disorders), frequent no-shows, and slow progress. Yet, none of the therapists experienced (excessive) work stress and some even argued that work stress is lower as compared to working with other patient groups.

Treatment ADHD. All therapists agreed that treatment of patients with ADHD is well organized at the forensic outpatient center. Therapists appreciate the different phases and treatment modules that are offered and see the benefits of having a multidisciplinary team of experts and therapists that can tackle different aspects of patients' treatment and daily struggles. For example,

several therapists focus on substance use problems, while others help with financial problems. Lines between the different therapists and experts are short, which increases efficiency. Importantly, almost all therapists valued the use of psychoeducation to inform patients about what ADHD is and how it can affect their lives. To them, the insights from psychoeducation are key to further treatment success because it enhances patients' self-insight and provides important information that can help reduce offending.

Therapy is viewed as rather successful by most, because the program offers a clear structure. Patients follow different protocolled phases focused on diagnostics, psychoeducation, and pharmacotherapy that are tailored to their individual needs (e.g., substance use, trauma, personality disorder). The drawback is that this approach takes up quite some time and it can thus take a while before a patient is in treatment for ADHD and offending. In addition, many therapists argued that it is challenging to treat patients with ADHD because there are often comorbid personality disorders that explain offending behavior.

Risks for treatment failure. Several factors were identified that often interfered with treatment progress or increased dropout. Patient factors that often interfered with treatment include a lack of readiness due to not accepting problems, young age, or social and financial instability. In addition, many patients overestimate their treatment progress, which results in quitting therapy too early or seeking out risky contexts, such as deviant friends and substance use, because patients feel that they can resist the temptations. On a therapist level, not taking patients seriously, a lack of knowledge about ADHD and its development, and an overestimation of patients' social and intellectual capacities can endanger treatment success. Moreover, one therapist remarked that in many other health care centers, patients are being treated as a number and much stigma rests on the forensic label. Such attitudes may hinder treatment progress. Finally, on a structural level, no-shows interfere with treatment progress and consistency and present a considerable problem that is specific to patients with ADHD. Moreover, often it can take a while before patients start treatment that focuses on aggression, which means that patients run the risk of dropping out before actual treatment starts. Acknowledging ADHD early on and providing psychoeducation to increase self-insight may mitigate this risk.

Responsivity

Therapist factors. In terms of treatment responsivity, several therapist-related factors were identified that help during treatment. Obvious factors included patience, establishing a positive, trusting, and open relationship with the patient, providing structure, and being knowledgeable about ADHD. There were also factors specific to treating patients with ADHD. About half of the therapists indicated that a sense of humor was important. Moreover, allowing for more flexibility and communicating a non-judgmental attitude were important as in many cases no-shows or poor compliance are not due to ill will. Instead, this is often related to ADHD problems and its related symptoms, such as impulsivity. Connecting to the world of the patient also helps in creating a positive relationship. At the same time, therapists stated that being honest, setting boundaries, and providing more directive coaching are crucial in treatment success. Finally, it was mentioned that the small successes during treatment should be savored. Focusing on the small steps that patients take and providing them with positive reinforcement may help keeping patients (and therapists) motivated.

Patient factors. All therapists agreed that treatment success has to come from both sides. Patients' motivation to change their behavior or life is a prerequisite for successful treatment. Most therapists noticed that patients become more committed to treatment when they gain more insight into ADHD and how it affects their lives and that of others. It can take some time before patients realize the effect of ADHD and comorbid problems, which can complicate treatment. In these cases, it may be needed to re-enroll them in treatment. Other important patient-related factors that improve responsivity include supportive social networks, higher intelligence, stability in their lives, and medication for ADHD symptoms. Vice versa, a lack of trust, deviant social networks, and comorbid problems interfere with treatment progress.

Improving treatment success. Therapists provided a number of ways that improve treatment responsivity. Primarily, it was considered important to repeat important information and visualizing information via symbols, drawings, and photographs. In relation to this, some therapists had patients write on the whiteboard themselves or found other ways of physically activating patients, which seemed to better fit their learning style than sitting still in a chair. Most therapists

kept sessions short and were flexible in adjusting the treatment session to the current needs of the patient. Moreover, therapy sessions are often planned on the same day at the same time to avoid no-shows. Sending text messages or calling up patients before the therapy session also decreased no-shows. Other suggestions were to compile a signaling plan for risky situations with patients and to be accepting of the fact that many patients return after their initial treatment. This should not be seen as failure, but more as a part of ongoing treatment for this group of patients.

Therapists also made suggestions for future improvements, ranging from therapy sessions at home to including e-health modules and support networks to provide ongoing treatment and support outside the outpatient center. Furthermore, it was suggested to accommodate different learning styles related to specific offenses, patients' needs and capabilities. For example by providing additional structure in treatment for those who need it, by providing visual support during psychoeducation, or by using role-playing or creative exercises instead of therapy talk sessions. Currently, individual adjustment in treatment only consists of fine-tuning personal contact with patients, but does not specifically address learning styles.

Reoffending risk. Impulsivity is mentioned at the most central risk factor of reoffending risk. One therapist mentioned that impulsivity also works through in treatment: 'they start impulsively and stop impulsively'. Many therapists saw impulsivity as the catalyzer of many problems because it leads to relapses in substance use, seeking out risky situations and deviant friends, and impulsive behaviors after setbacks. Others also see personality problems as being at the core of (re)offending.

For many patients, it is challenging to show resilience when things go awry in their life, such as a break-up or job loss. Therefore, several therapists pleaded for fortifying patients' formal and informal support network and stabilizing patients' social-economic environment. Informal support networks may signal when things are about to go wrong, whereas formal support (e.g., treatment center) may help patients when they need it most, for example by calling in when things are not going well, or by picking up therapy where they left it.

Therapists' reflection on their patient. Interestingly enough, although most therapists stated that no-shows and poor motivation often stand in the way of treatment of patients with ADHD, all patients that we interviewed showed up at most session, and showed up on time. Moreover, most of them were highly motivated and treatment progress was good in many patients. For most patients ADHD problems require a different approach and for some the effects of ADHD are tempered by medication, whereas for others the social environment (e.g., partner, family) provides the necessary support. Factors that increase risk of reoffending mostly pertain to instability in patients' lives, negative life events, and relapse into substance abuse.

5.5 Discussion

In the current study, we aimed to gain more insight into the responsivity of forensic patients with ADHD. We provided three perspectives on responsivity in treatment of offenders with ADHD. Below, we described the most relevant insights from each perspective.

First, despite the scarcity of studies that focused on responsivity in offenders with ADHD, the handful of studies we identified showed that pharmacotherapy related to methylphenidate were effective in reducing core ADHD symptoms in offenders and that treatment related to cognitive therapy, or combinations of psychoeducation and pharmacotherapy were effective in reducing ADHD symptoms and offending. Moreover, several studies indicated that ADHD symptoms were associated with lower treatment adherence. Previous studies suggested that high no-show rates among individuals with ADHD are due to high impulsivity, attention problems, forgetfulness, lack of planning skills, a lack of prioritization, and a more chaotic lifestyle (Cubillo, Halari, Smith, Taylor, & Rubia, 2012; Rösler et al., 2010; Young et al., 2015). The studies we reviewed suggest that pharmacotherapy may help decrease ADHD symptoms that interfere with treatment adherence. Hence, pharmacotherapy may improve adherence, and subsequently decrease reoffending (see also Stoel et al., 2018). Moreover, preliminary evidence showed that the R&R2ADHD intervention increased problem-solving skills, impulsivity- and anger control, which may also facilitate treatment compliance (Young et al., 2017). To conclude, although medication may not always have a direct effect on decreasing offending, it does seem to enhance patients' responsivity such that it improves treatment readiness for psychotherapy and cognitive skills training as well as decreasing ADHD

symptoms that stand in the way of treatment adherence and compliance in the first place (Ginsberg et al., 2013).

Second, patient perspectives partly echo the findings from the literature. Patients all indicated that psychoeducation and cognitive behavioral therapy helped them to get their life back on track and decreased offending. However, patients had mixed opinions about the effects of pharmacotherapy. Some attributed their improvement to ADHD-related medication, but others felt that it interfered with their thoughts, clarity of mind, and behavior. Although patients differed in what worked for them, they all valued the personalized approach that was offered by the institution. Furthermore, some common factors enhanced treatment responsivity. That is, social support helped most patients to stay in treatment and process the information during treatment. For many patients, their family was also an important motivation to start treatment. Moreover, patients mentioned a range of tools that helped them to adhere to treatment, namely reminder text messages, visualizing information, and flexibility in planning meetings. These tools match the view in the RNR model that responsivity depends on the learning style of the patients (Andrews et al., 2006). Finally, in line with studies on deviant peer affiliation and substance use, patients indicated that deviant peers, deviant social contexts, and substance use were important risk factors for reoffending for them. Many patients coped with these negative external influences by avoiding them altogether, in some cases leading to social isolation.

Third, therapists painted a picture that closely aligned patients' view on treatment. Similar to patients, therapists valued psychoeducation as a way to provide patients with more insight into how ADHD related to offending and other problems. Moreover, the role of a good social support network and highly structured therapy sessions were at the core of successful treatment. However, therapists also added that to increase treatment responsivity in forensic patients with ADHD it is important to keep patients motivated by celebrating small steps (provide positive reinforcement) and using humor to bond with patients. Perhaps most noticeably, ADHD is best viewed as a handicap and not as something that can be solved. Treatment should thus focus on helping patients deal with this handicap in daily life. Therefore, patients returning to treatment should not be seen as failure, but as part of ongoing treatment. In line with this, short communication lines between support organizations, patients, and therapists should become an integral part of treatment and post-treatment support.

In sum, these three perspectives each provide a unique take on responsivity, but also have many recurrent themes. These perspectives are also relevant for the discussion of whether ADHD is related to offending (Young & Cocallis, 2019). Interestingly, ADHD was not always seen as a direct risk factor for offending, but was associated with an increased need for sensation and substance use according to patients, which in turn increased the risk of offending. Moreover, reducing core ADHD symptoms was associated with less offending and fewer ADHD symptoms were related to better treatment adherence. As such, it seems that ADHD may not have a direct effect on offending, but is a significant underlying cause of risk behaviors and poor treatment adherence.

5.5.1 Limitations

These insights should be interpreted in light of some limitations. The current study has an explorative nature and hence we cannot generalize to the larger population of forensic patients with ADHD. Although the overview of the literature is exhaustive, the sheer lack of studies focusing on this offender population does not warrant any firm conclusions. Furthermore, most studies were conducted on UK and US populations and some studies had relatively small sample sizes. Expanding this work to non-UK and US populations and using larger samples is thus warranted to draw stronger conclusions. As there is more recognition of the importance of treating ADHD in offenders (Buitelaar et al., 2020; Cochalis & Young, 2019), the future may witness an increase studies that test the effectiveness of treatment in the population and with that provide more insights into treatment responsivity.

Moreover, a more systematic and expanded approach is needed to draw conclusions about patient and therapist perspectives on responsivity. Notwithstanding the effort of recruiting participants in forensic outpatient settings, interviews with 10 patients and 11 therapists only provide a small slice of information. As the findings illustrate, patients (and therapists) are heterogeneous as they have different needs, motivations, life history, and views on life. These factors make that what works for one may not work for another. To examine such differences in more details and to

identify patterns and similarities between patients' responsivity requires a more quantitative approach. The current findings provide some direction as to how patients may differ and what works for most.

Finally, it is important to realize that the outpatient center that was included in the current study differs significantly from many other forensic and general health care settings. The current outpatient center is highly specialized in developmental disorders, including ADHD. The multimodal treatment program was designed in this center. Hence, during treatment, therapists place more emphasis on ADHD and related symptoms and psychoeducation is centered on ADHD as well. Because of their training, psychologists and psychiatrists are more aware of ADHD-related problems and hence ADHD may also be acknowledged more easily (and consequently adequately treated) as compared to other health care centers. Furthermore, most therapists working at the center were rather enthusiastic about the program and proud to work there, so there might be some bias in being critical to the possibility that some components of the treatment program might not be as effective as assumed. Similarly, patients that were recruited in the current study may have represented a group of patients that showed more treatment success, more treatment motivation, and fewer behavioral problems. That is, patients currently in crises were excluded and patients who were less motivated for treatment may also have been less likely to take part in the study.

5.5.2 Implications

In addition to the abovementioned suggestions for future research, also clinical practice may profit from the current insights. The suggestions made by patients and therapists to stimulate treatment adherence are in some cases easy to implement (e.g., sending reminders, visualizing information, clean and peaceful waiting room). In other cases, they may require more effort, but may also benefit treatment adherence and progress more. For one, facilitating that patients bring to therapy someone close to them (e.g., friend, partner, family member) may help in processing novel information and integrate this into their daily lives. Moreover, and not surprisingly, what seems to work effectively according to previous literature, patients, and therapists is addressing problems related both to ADHD and comorbid problems (e.g., substance use, financial problems, personality disorders).

Another issue that stood out is the patients' perspective on group therapy. Although opinions differed slightly, several patients agreed that group therapy may have iatrogenic effects, because of negative social influence processes and little attention for personal needs and differences. This suggests that group therapy sessions may benefit from closer monitoring (cf. Tipsord & Dishion, 2011) and allowing more flexibility in tailoring to patients' individual needs. Further research into the question whether group or individual treatment is most beneficial to patients with ADHD and delinquent behavior is highly recommended.

A number of patients and therapists also pointed out that there is much stigma surrounding psychological treatment in the social surroundings of patients. This has sometimes kept them away from treatment or made it hard to share their problems with others. Relatedly, many patients felt that the label ADHD worked in a stigmatizing way, and were viewed as dumb or problematic by their surroundings and themselves. For most patients, this negative view changed to a more positive take on ADHD during treatment, and is thus sometime to give attention to in treatment.

Lastly, several studies we reviewed as well as therapists have made suggestions for decreasing reoffending risk and ADHD symptoms related to offending. For one, interventions aimed at improving impulse control, emotion-regulation, and social functioning may target both ADHD and comorbid psychiatric disorders in offenders and may thus enable a further reduction of recidivism risk (Sebastian et al., 2019). These comorbid psychiatric conditions, especially those related to antisocial disorders, may complicate treatment and thus require additional treatment as well (Mir et al., 2015). Similarly, it is important to assess patients' drug and alcohol use behaviors, considering the high risk of drug-related crimes in offenders with ADHD (Howard, McCarthy, Huband, & Duggan, 2013).

5.5.3 Conclusion

The current study has shed more light on responsivity in forensic patients with ADHD. Despite differences between perspectives from scientific literature, patients, and therapists, there are also similarities. Core ADHD symptoms may interfere with treatment and healthy behavior, which in turn

increases offending risk. In some patients, pharmacotherapy seems to mitigate some of these negative effects, though more research is needed in this area. Moreover, psychoeducation and CBT seem to be effective in reducing offending and coping with ADHD in daily life, but adequate, ongoing, and sufficient social support seems a key success factor in treatment adherence and progress. If anything, the current study shows that it is not only important that scientific and practical perspectives learn from each other, but also that therapists and researchers actively engage with patients to provide the best treatment possible. As one patient fittingly remarked: 'What I like about our talks with [the therapist] is that he tries to adjust to what fits the other person'.

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6. Conclusie

Met de twee onderzoeken is getracht meer kennis te genereren over de responsiviteit van forensische patiënten met ADHD. Hoewel uit beide onderzoeken naar voren kwam dat ADHD een belangrijke rol speelt in de verklaring van delictgedrag, lieten perspectieven vanuit de wetenschappelijke literatuur, behandelaars en patiënten ook zien dat deze relatie afhankelijk was van andere factoren. Zo bleek dat ADHD-symptomen, zoals impulsiviteit en verhoogde beloningsgevoeligheid kunnen leiden tot ondoordachte keuzes (bijv. het opzoeken van risicovolle omgevingen of heftig reageren op de sociale omgeving) die vervolgens uitmondden in delictgedrag. Daarnaast bleek uit de literatuur dat er momenteel weinig behandelprogramma's zijn die zich specifiek richten op de forensische populaties met ADHD en dat terwijl behandeluitval en recidive in deze populatie hoog is. Tijdens de diepte-interviews gaven zowel behandelaars als patiënten concrete richtlijnen voor het invullen van een passende behandeling, die de responsiviteit tijdens behandeling kan verhogen en aansluit bij de leerstijl van patiënten met ADHD. Deze aanbevelingen kunnen dienen als input voor nieuwe behandelprogramma's en dienen getoetst te worden op effectiviteit alvorens zij worden geïmplementeerd. Gezien de grote heterogeniteit in risicofactoren, ADHD-symptomen en recidiverisico lijkt het devies om de behandeling zoveel mogelijk af te stemmen op de individuele patiënt. Nagenoeg alle patiënten in het huidige onderzoek waardeerden deze persoonlijke aanpak en voelden zich hierdoor iets meer mens en wat minder crimineel of onaangepast. Daarnaast werd een dergelijke aanpak niet als iets vanzelfsprekends gezien in de geestelijke gezondheidszorg, wat er mede voor zorgt dat deze groep patiënten moeilijk aansluiting vindt bij de maatschappij en hiermee het risico op delictgedrag vergroot.