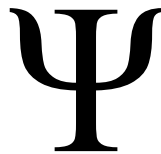




DET PSYKOLOGISKE FAKULTET



Psychopathic traits in children and adolescents

– a systematic review of treatment studies

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Abstract

No comprehensive overview of extant research specifically related to the treatment of child and adolescent psychopathy has been undertaken where the entirety of the construct has been the focus of the review. To fill this knowledge gap in the current literature, the overarching aim of this systematic literature review was to investigate treatment efficacy, while also regarding the inherent conceptual and methodological challenges in the field. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement, systematic searches for primary studies were conducted in APA PsycINFO (Ovid), MEDLINE, PROQUEST Psychology Database, and Web of Science – Core Collection. Of the 3114 studies eligible for screening, ten fulfilled the inclusion criteria for the qualitative synthesis. An evaluation of the included studies produced mixed results regarding treatment efficacy. These results are discussed considering known etiological factors that might influence therapeutic interventions within this specific group. It is concluded that there is an urgent need for conceptual clarification and increased methodological rigor as this affects what can be said about treatment.

Keywords: Psychopathy, Children and adolescents, treatment, conceptualization

Sammendrag

Ingen omfattende oversikt over tilgjengelig forskning spesifikt relatert til behandling av psykopatiske trekk hos barn og ungdom har hittil eksistert hvor fokus har vært på hele konstruktet. For å fylle kunnskapshullet i den nåværende litteraturen, har det overordnede målet med denne systematiske litteraturgjennomgangen vært å undersøke behandlingseffekt, samtidig som iboende konseptuelle og metodologiske utfordringer i feltet tas i betraktning. Systematiske søk etter primærstudier ble gjort i APA PSYchINFO (Ovid), MEDLINE, PROQUEST Psychology Database, og Web of Science – Core Collection. Disse søkene fulgte Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) uttalelsen. Av de 3114 studiene som kvalifiserte for nærmere gjennomgang, var det ti som oppfylte inklusjonskriteriene for den kvalitative syntesen. En evaluering av de inkluderte studiene ga blandede resultater hva angår behandlingseffekt. Disse resultatene blir diskutert på bakgrunn av kjente etiologiske faktorer som kan tenkes å påvirke behandlingseffekten i denne gruppen av barn og unge. Det konkluderes med at det foreligger et behov for konseptuell oppklaring, samt økt metodologisk kvalitet på studiene da dette påvirker hva som kan sies om behandling.

Stikkord: Psykopati, barn og ungdom, behandling, konseptualisering

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Instead of laboriously describing the winding backroad that led to this manifest proof of turning my life around, I would like to quote a famous Norwegian humanitarian, Marve Fleksnes:

“Han kom, ble svett, og dett var dett.”

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Conceptualization of psychopathic traits in children and adolescents

– a systematic review of treatment studies

Psychopathy refers to a constellation of traits with specific affective, interpersonal, and behavioral features (Cooke & Michie, 2001; Hare & Neumann, 2008; Neumann et al., 2015), including lack of empathy, guilt, and remorse, shallow affect, selfishness, callousness, interpersonal exploitativeness, superficial charm, irresponsibility, impulsivity, and potentially chronic antisocial behavior (Cooke et al., 2006; Hare, 1991; Lykken, 1995). Conservative prevalence numbers indicate that the criteria for psychopathy are met by about 0.5 - 1.2 percent of the general population (Coid, Yang, Ullrich, Roberts, & Hare, 2009; Hart, 2016; Neumann & Hare, 2008), and as much as 25 percent in prison populations (Coid, Yang, Ullrich, Roberts, Moran, et al., 2009; Hare, 2003; Neumann et al., 2015). Psychopathic traits are related to a host of negative consequences both for the individual, their next of kin, and for society at large (Colins et al., 2021; Skeem et al., 2011; Viding & McCrory, 2018). It is assumed that people with psychopathy are responsible for more than half of all violent and/or serious crime in the communities they operate in (Hare, 1999), and that the disorder cost society more than ten times the costs attributed to depression (Viding, 2019). Furthermore, psychopathy is often comorbid with other psychiatric disorders and is a risk factor for physical health problems as well as for problems related to education, employment, and accidents (De Brito et al., 2021).

As several of the traits characterizing psychopathy are considered dysfunctional, psychopathy has traditionally been considered as a personality disorder restricted to the adult population (Hare & Neumann, 2008). However, recent advances in research point to psychopathy as more of a developmental- (Lynam et al., 2007; Ribeiro Da Silva et al., 2020) or neurodevelopmental disorder (Raine, 2018; Wakschlag et al., 2018), which implies that the condition has antecedents present already in childhood. Indeed, there is evidence of the traits

being observable in children and adolescents, and that they can reliably predict increased risk of developing the disorder as it is manifested in adults (Hawes et al., 2017; Hemphala et al., 2015; Lynam et al., 2007). Estimations place 1.5-2 percent of children at such developmental risk for psychopathy (Viding, 2019).

As a condition psychopathy seems to be progressive and to worsen over time, as well as becoming progressively less responsive to treatment interventions (Caldwell et al., 2012; Ribeiro da Silva et al., 2013; Salekin et al., 2012). Psychopathy therefore has a poor reputation regarding treatability (Harris & Rice, 2006; Hecht et al., 2018; Viding, 2019). The reasons for the poor prognosis are multifold, but include factors relating to motivation, interpersonal functioning, and certain neurocognitive biases in these individuals (Ribeiro Da Silva et al., 2020). Tailoring treatment specifically to deal with these well-known issues is appearing as adamant for therapy to have effect. This is probably best explored in childhood and adolescence where the etiology is potentially easier to identify, and the malleability of behavior and the plasticity of the brain is at the greatest. It is assumed that intervening early towards children at risk provides the best prognosis for betterment and may resolve a host of problems before they consolidate (Frick et al., 2014; Hawes, Price, et al., 2014; Salekin, Andershed, & Clark, 2018), with earlier intervention producing the largest effects (Hawes, Price, et al., 2014; Masten & Cicchetti, 2010) and highest returns (Cohen & Piquero, 2009; Heckman, 2006; Reynolds & Temple, 2006).

There exists some prior reviews and one meta-analysis that have looked at treatment of psychopathic traits in childhood (Hawes, Price, et al., 2014; Salekin, 2002; Wilkinson et al., 2016). However, each of them has either methodological or conceptual limitations (Ribeiro Da Silva et al., 2020). To my knowledge none have provided a comprehensive overview of extant research on the treatment of child and adolescent psychopathy where the entirety of the construct has been the focus of the review. This is important due to possible

differences in etiology and mechanisms underpinning various psychopathy configurations, which has possible treatment implications. Hence, the current review extends previous research by determining whether psychological treatment is effective in children and adolescents across all known psychopathic personality trait dimensions. To fill this knowledge gap, the overarching aim of this study was to provide a systematic review of existing peer-reviewed empirical studies on current theory driven interventions aimed at reducing psychopathy levels in this population. A prerequisite for conducting such a review is that the available material meets the methodological and conceptual standards of an intervention-/treatment study. Therefore, part of the present paper is comparing the reviewed studies to the current “best practice” recommendations regarding methodology for clinical treatment studies. This involves an analysis of the case classification criteria employed in these studies, whether they align with the current conceptualization of psychopathy. This also involves an analysis of the extent to which the psychotherapeutic interventions tried out so far adhere to what is known about the etiology of the disorder.

Psychopathy

Modern conceptualizations of psychopathy mostly derive from or build upon the pioneering work of Hervey Cleckley (1941). In “The mask of sanity” he describes both males and females that are severely personality disordered masked by an outwardly appearance of sound mental health. He outlined 16 features that were the core of the psychopathic personality with a focus on the most salient and deviant interpersonal and affective components (Ribeiro Da Silva et al., 2020). It was first later that antisocial behavior was stipulated as an inherent feature of psychopathy, not just a behavioral corollary (Cloninger, 1978; Robins, 1978; Spitzer et al., 1975). An operationalization of psychopathy consistent with both these early conceptions was made by Robert D. Hare (2003) in his development of the Psychopathy checklist-revised (PCL-R; Hare, 1991), the most prominent and commonly

used instrument for the assessment of adult psychopathy in scientific, clinical, and forensic settings (De Brito et al., 2021; Jones et al., 2006). In the PCL-R, psychopathy is underpinned by two correlated dimensions – that also appear through factor analysis (Harpur et al., 1988; Harpur et al., 1989). The first dimension is the interpersonal and affective features (Factor 1), and the second dimension captures a chronic antisocial lifestyle (Factor 2). A model that further parses these two original dimensions into four facets was developed more recently (Hare, 2003). In this model Factor 1 is comprised of ‘interpersonal style’ (Facet 1) and ‘affective experience’ (Facet 2). Factor 2 is parsed into the behavioral manifestations associated with ‘lifestyle’ (Facet 3) and ‘antisociality’ (Facet 4). This model was partly the result of Cooke and Michie (2001) presenting evidence for a three-factor hierarchical model. Their triarchic conceptualization presented a better fit than the traditional two-factor model by Hare. The three-factor model split the Factor 1 of the original model into two related factors (‘Deficient affective experience’ and ‘Arrogant and deceitful interpersonal style’). A third factor named ‘Impulsive and Irresponsible behavioral style’ resembles Factor 2 of Hare’s model with the exception that it had done away with the explicitly criminal items of the PCL-R (Jones et al., 2006).

The removal of the antisocial component, as in the conception of Cooke and Michie (2001), started a debate over whether the antisocial-criminal elements left out were of essential value for the understanding of the psychopathy construct as well as for clinical purposes (Hare & Neumann, 2010; Lynam & Miller, 2012; Neumann, 2007). A triarchic model, such as that by Cooke and Michie (2001), fits with a conception where antisociality (e.g. criminal behavior) is seen as strongly correlated with psychopathy but not as a component of the construct (Skeem & Cooke, 2010). In this view antisociality is not a necessary component of psychopathy, nor is it sufficient for a diagnosis of psychopathy. Yet, there is much evidence that the core personality profile is deleterious still without the direct

antisocial component as it causes these individuals problems in their intimate relationships (Jonason & Kavanagh, 2010; Theobald et al., 2016), in their peer- and friend relationships (Benning et al., 2018; Jonason & Schmitt, 2012), and as parents (Berg-Nielsen, 2010; Iacono, 2018).

Lilienfeld (1994) has dubbed the personality-based approach to psychopathy as an ‘open’ conceptualization of psychopathy and the behavior-based approach as a ‘closed’ conceptualization of psychopathy. He regards the ‘closed’ conceptualization as suffering from issues pertaining to both sensitivity (false-positives) where too many individuals are included in the category, and specificity (false-negatives) where non-criminal, higher functioning individuals with psychopathic traits are not included in the category due to the lack of the (identifiable) behavioral expressions.

Despite the great amount of work put into defining psychopathy, it has generally been a concept not fully agreed-upon in the research community (Hecht et al., 2018; Patrick, 2006; Skeem et al., 2011). The concept has been murky, reflecting a somewhat fuzzy prototype comprised of multiple separate entities (Lilienfeld, 2018). The lack of conceptual clarity might downstream result in difficulties concerning the measurement of the construct. Further, operationalizations of psychopathy will directly affect evaluations of treatment efficacy (Hecht et al., 2018). Current research seems over-reliant on either a single subdimension such as callous-unemotional (CU) traits or on the full construct without enough regard to all subdimensions constituting the overarching construct (Lilienfeld, 2018; Salekin, Andershed, & Clark, 2018). There are however numerous proponents for conceptualizing psychopathy as a multidimensional construct (Hare & Neumann, 2005; Lilienfeld, Watts, Francis Smith, et al., 2015; Patrick et al., 2009). Some authors also point to the existence and possible reliable identification of psychopathy variants/’subtypes’ (Hicks & Drislane, 2018; Patrick, 2018; Sellbom & Drislane, 2021), which is a logical implication if the disorder is to be considered

as a configurational construct. Lilienfeld (2018) further warns that neglecting to consider multidimensionality is to forego valuable etiological and predictive information, a valid point that directly impinges on current treatments. Furthermore, psychopathy has been said to be continuously spread in the population differing in degree rather than in kind with regard to how it contrasts with normality (Edens et al., 2006; Murrie, Marcus, et al., 2007; Neumann & Hare, 2008); meaning that psychopathy might be viewed as a dimensional construct rather than as a taxon. The existence of individuals with subclinical levels of psychopathic traits bears direct relevance to the problem of how the construct should be defined and measured, and thereafter, whom the treatment efforts should be targeted at.

Longitudinal research with adults has provided evidence for childhood and adolescent psychopathy scores as stronger predictors of adult criminality than factors such as aggression, impulsivity, IQ, attention, conduct problems (CP) and previous offending (Lynam, 1997; Lynam et al., 2009). Thus, findings from adults may indicate that a key in solving the issues related to psychopathy lies in childhood and adolescence.

Psychopathy in children and adolescents

As succinctly stated by Colins and Andershed (2019): “personality disorders do not appear out of the blue in adulthood” (p.166). Rather the antecedents of a severe personality disorder such as psychopathy are usually traceable to factors appearing much earlier in life (American Psychiatric Association, 2013; World Health Organization, 1992). Like other disorders and concepts relevant to adults, psychopathy has been attempted extended downwards to children and adolescents with one aim being the identification of developmental pathways of the adult manifestations (Fanti, Lordos, et al., 2018; Salekin, Andershed, Batky, et al., 2018). The concept of psychopathic traits in children is originally an old one with the first attempt at describing the condition undertaken by John Bowlby (Viding, 2019). In ‘Forty-four juvenile thieves: their characters and home-life’ Bowlby (1944) built on

the characteristics of Cleckley (1941) when describing these youths as ‘affectionless psychopaths’. Since this early endeavor childhood psychopathy was conceptualized (Forth et al., 1990) and received subsequent support by multiple authors (Frick et al., 1994; Lynam, 1997). Both a refinement of the construct as well as an enormous spike in the amount of research in the field has since occurred, especially in the two recent decades (Colins & Andershed, 2019; Patrick, 2018). Among antisocial youth the presence of psychopathic traits has been seen as designating a subgroup with more severe and aggressive patterns of behavior, both in forensic samples (Caputo et al., 1999; Kruh et al., 2005) and community samples (Frick, Cornell, et al., 2003; Lynam, 1997).

Contemporarily psychopathy in children is often construed of the three broad personality domains; callous-unemotionality (CU), grandiose-manipulative (GM) and daring-impulsive (DI) (Salekin, 2017), a three-factor structure introduced by Frick and Hare (2001). CU traits are related to such features as less emotional responsivity (Kimonis et al., 2006), indifference to others’ emotions (particularly fear) (Dadds et al., 2008; Marsh et al., 2011) presenting as lack of empathy and remorse, as well as flattened affect or short-lived emotions (Pisano et al., 2017). These are the traits making up the affective dimension. GM traits are related to narcissism, which entails that the individual possesses such traits as being self-centered, arrogant, deceitful, manipulative, and superficially charming (Craig et al., 2021; Pisano et al., 2017). Thus, the GM trait dimension is related to interpersonal functioning. DI traits are related to impulsivity. Individuals scoring high on DI traits are irresponsible, prone to boredom, sensation-seeking, and these individuals are also potentially antisocial (Pisano et al., 2017). These three dimensions are in principle equivalent to the three domains in the PCL-model that make up Factor 1 and the non-criminal behavioral dimension of Factor 2, or they could be seen as mapping onto similar dimensions as those in the triarchic model by Cooke and Michie (2001). Except for the Psychopathy checklist: Youth Version (PCL: YV; Forth et

al., 2003) it is worth noting that most instruments measuring child and adolescent psychopathy do not include a dimension mainly focused on capturing criminality (Colins & Andershed, 2019). It could further be said that CP, and maybe specifically the condition of conduct disorder (CD) in children could be compared to the antisocial dimension by some considered essential in adult psychopathy (Salekin, 2017).

According to Salekin, Andershed, Batky, et al. (2018) the concept of youth psychopathy has become increasingly important not just for the understanding of CP more broadly, but in subtyping children and adolescents with CD. The intent of such subtyping is that different etiological pathways to CD may demand different treatment interventions. Children with concurrent CD and psychopathic traits also seem to present with distinct characteristics, just like adults presenting with simultaneous antisocial conduct and psychopathic personality traits (Hare, 1998; Hart & Hare, 1997). Some authors have identified children with CU traits as a particularly aggressive subgroup of children that manifest with early onset antisocial behavior (Frick & White, 2008). Longitudinal studies have found the antisocial behavior of this subgroup to be persistent, even after controlling for the severity of prior CP (Frick et al., 2005; Loeber et al., 2002). CU traits are by these authors said to designate specific deficiencies in the affective domain (absence of guilt and a constrictive display of emotion) as well as a particular interpersonal style characterized by failure to be empathic, and callous use of other individuals for their own personal gain (Frick et al., 2014; Frick & White, 2008). CU traits have further been associated with a childhood onset trajectory of CP (Frick et al., 2014).

On the other hand, Andershed et al. (2018) present evidence for the importance of incremental information gained from not just focusing on CU traits. In a delineation of six configural subgroupings of psychopathic traits with co-occurring CP clear differences were found regarding correlates of the various personality configurations. Those high on all three

personality dimensions (CU, GM, and DI) concurrent with CP identify a group with the most robust and highest risk for future CP, aggression, and substance use. A group high on all three psychopathy dimensions without CP was second most at risk, while a group presenting with only CP has the third most risk related to these antisocial outcomes. The group with CU-only and CP were only at risk for future CP. This was further taken as evidence that simply subtyping for CU traits was less informative than considering the three subdimensions in conjunction and in different configurations for subtyping of children and adolescent regarding prediction of future and stable antisocial outcomes (Andershed et al., 2018). CU traits by themselves may be better predictors of difficulties pertaining to problems in certain aspects of emotional functioning (Gillen et al., 2018).

Recapturing the points made by Lilienfeld (2018), focus has been on either the subdimension of CU traits or on the full psychopathy construct (including the behavioral dimensions and correlates), and this has been done at the cost of figuring out both the etiological mechanism behind the other subdimensions and their individual contributions to the bigger picture. The full constellation of psychopathic traits has been found to outperform CU traits in statistically predicting external criteria (Frick & White, 2008; Lee, 2018; Lilienfeld, 2018) and the subdimensions of psychopathy often do so by interacting statistically (Lilienfeld, 2018). Somma et al. (2018) recently demonstrated such interaction effects when they found that CU traits positively predicted higher levels of delinquency when high levels of GM- and DI traits were simultaneously present. This was opposed to when GM- and DI trait dimensions were low in combination with CU traits which produced lower levels of delinquency. However, the lowest levels of delinquency were found when there was a presence of high levels of CU- and GM traits but low levels of DI traits. This points to specific configurations of the trait dimensions as important for prediction and differentiation of subgroups of children and adolescents with psychopathic traits (Somma et al., 2018). The

implications for research are also clear. A study that deals with only one of the aforementioned three dimensions may probably not be considered informative for knowledge gains regarding the psychopathic personality (Colins & Andershed, 2019). It has rather been suggested that studies that test for correlation between an external construct and one of the psychopathic trait dimensions increase in strength when it is also possible to control for the other two dimensions. Such studies may in the least suggest that the relation between psychopathy and external correlates lie in the combination of all three psychopathic dimensions (Colins, Fanti, Larsson, et al., 2017). Yet, such studies are not sufficient, and ideally it is suggested that studies on youth psychopathic traits include a three-way interaction term between all three dimensions (Colins & Andershed, 2019; Salekin, 2017). This is based on previous empirical findings indicating a three-way interaction effect between the three subdimensions (CU, GM, and DI) and concurrent and future antisociality in children and adolescents (Colins et al., 2013; Fanti, Kyranides, et al., 2018; Orue & Andershed, 2015). It is also suggested that a person-oriented approach to analyses is used to see whether a group of individuals emerge who are high on all three psychopathic trait dimensions simultaneously (Colins & Andershed, 2019).

Further, it would be wise to use the phrasing ‘psychopathic traits’ when referring to one of the three psychopathy dimensions, or if one is referring to a total score that is comprised of all the three dimensions. On the other hand one should then refer to ‘psychopathy’ or ‘psychopathic personality’ only when there is co-occurring high levels of the three dimensions simultaneously (Colins & Andershed, 2019). In other words, scoring high on the CU dimension does not qualify for psychopathy, but merely indicates that the person has an elevated score on one dimension of psychopathic traits related to the affective domain.

Currently the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM–5; American Psychiatric Association, 2013) only contains a specifier for CU traits in conjunction

with CD; 'limited prosocial emotions'. This may prove practical but could also be considered as neglecting other useful specifiers based on the GM- and DI trait dimensions. Many of the CU trait measurement tools are also thoroughly confounded with the GM dimension, making the question inevitable as to whether they measure the intended CU traits. There are also issues as to whether the CU trait assessment tools are actually in line with the specifier as listed in the diagnostic manual (Colins & Andershed, 2019). The rationale behind the CU specifier is simply that children with such traits present with different profiles than other children with CD, have different risk profiles, and may therefore need different treatment approaches. From the evidence so far considered, it may seem important to also gain more knowledge about the risk associated with additional configurations, not just CU traits and various CP.

As with antisocial behavior and crime, CD by itself is also a bad predictor of which individuals are on a trajectory for lifelong personality disorder or psychopathy and should probably be considered an associated phenomenon or outcome of the core feature of psychopathic personality traits. As a diagnosis CD itself is not very stable either. It has 32647 possible symptom combinations (Perepletchikova & Kazdin, 2005), thus failing in terms of both diagnostic specificity and sensitivity (Kiehl, 2014). Furthermore, as much as 80 percent of those at some point afflicted grow out of the diagnosis (Kiehl, 2014). This probably has implications for treatment studies focused on behavioral change, as there will be a confound between what the treatment has achieved and what has occurred naturally from psychosocial maturation or the mere passage of time.

Precautions for labelling a child as psychopathic obviously exist, both from an ethical standpoint but also from a developmental perspective (Viding & McCrory, 2018). One criticism has been the developmental normativity of certain traits (Edens et al., 2001; Seagrave & Grisso, 2002), such as those associated with superficial charm, glibness,

arrogance, manipulateness and deceitfulness towards others. Viding (2019) points out that one would not classify a child as at risk unless their behavior was extremely concerning to those around the child. One would have to consider the behavior atypical compared to their age-equivalent peers, and the behavior of the child would have to cause harm to both themselves and others through reduced functioning in social relationships and education or work. There is much to indicate that children at risk for developing psychopathy do indeed have lower quality of life (De Brito et al., 2021). In addition to the already mentioned troubles with conduct, they seem to struggle in domains such as school (Horan et al., 2016), interpersonally with their teachers and peers (Milledge et al., 2018), with bullying behavior (Fanti et al., 2017; Stellwagen & Kerig, 2013; Viding et al., 2009), sexually risky behavior (Anderson et al., 2016), substance abuse (Gustavson et al., 2007; Hillege et al., 2010) and with various forms of aggression (Fite et al., 2010).

Etiology

Mechanisms assumed to be responsible for the development of psychopathy and its subdimensions are assisting in treatment efforts by identifying possible avenues for intervention. Although the etiology of the psychopathic personality is complex, it is established that it involves both genetic and environmental risk factors, and that it involves gene-environment interactions and correlations (De Brito et al., 2021; Ribeiro Da Silva et al., 2020). A recent systematic review by (Dhanani et al., 2018) found modest to high heritability of general psychopathic traits, as well as for interpersonal-affective and behavioral traits. Thus, evidence for heritability was found for the entire psychopathy construct.

Underlying the psychopathic manifestations in children are assumed deficits in the three core components of empathy (Morelli et al., 2014); both the cognitive (perspective-taking), affective (feelings of empathic or sympathetic concern) (Blair, 2013; Rhee et al., 2021; Waller et al., 2020), and the prosocial (Viding, 2019). These deficits are

probably also on top of more fundamental deficits in the attentional aspects of sensitivity and responsivity to emotional cues in the environment (Patrick, 2018), such as emotion recognition. The deficits in empathy, probably underpinning the CU and GM dimensions, link up with deficits relating to abnormal cognitive-attentional processing, decision-making and reinforcement learning (Blair, 2013); a propensity for impulsivity, insensitivity to punishment and an atypically strong reward focus (Viding, 2019). Individuals with psychopathic traits have more trouble responding adaptively to changes in reward contingencies and there are findings that link their fearlessness specifically to deficits related to passive avoidance learning (Roussy & Toupin, 2000). In short, one could claim that individuals high in these traits seek less social approval and find social approval less rewarding, with the flipside being that they do not fear social exclusion for breaking norms and that they do not feel guilt even though they might know they are transgressing to attain self-centered goals, and sometimes even enjoy doing so (Drayton et al., 2018; Foulkes et al., 2014). The lack of guilt is intimately tied to the interpersonal dimension, with higher levels of GM traits associated with less anterior insula activity (Seara-Cardoso et al., 2016).

A central model underlying contemporary etiological models is a theory of moral socialization (Kimonis, Frick, Munoz, et al., 2008). According to this theory, a child with psychopathic traits will not respond to the emotional and behavioral cues normally delivered when one transgresses the moral boundaries of other people. These cues might be the distress (such as sadness, fear or pain) of the victim of one's actions or the threat-of-punishment signaling (disapproval or anger) from an adult (Patricia et al., 2013; Seara-Cardoso et al., 2012; Viding & McCrory, 2012). In normally developed children the distress cues normally bring about an inner state of anxiety or discomfort (Blair, 1995) and the resulting unpleasant affective inner state will through conditioning based on negative reinforcement (possibly coupled with the aversive positive and/or negative punishment from an adult) result in

desistance of aggression or moral transgression. With repeat exposure to such learning and with increased psychosocial maturity, normally developing children internalize this model that causes an internal state of fear and guilt and are able to use it in guiding behavior even in the absence of a parent or caregiver (Kochanska, 1997), potentially both consciously and more automatically. Both as a result from transgressing moral boundaries, and in some cases possibly because their own parents struggle with empathy and other related issues themselves, children with psychopathy may experience more harsh and negative parenting, that is low in warmth. Some may also experience neglect and physical or emotional abuse (Tatar et al., 2012), lack of parental monitoring (Muñoz et al., 2011), or increased exposure to violence in their homes and in their community (Schraft et al., 2013).

In addition to these general features underlying psychopathy, efforts are also being made to harness knowledge of individual-specific etiology for the purpose of tailored interventions. The concept of equifinality entails that multiple developmental pathways over time lead to the same outcome but from different starting points (Cicchetti & Rogosch, 1996). Potential equifinality has been identified with at least two pathways leading into the affective dysfunctions associated with CU traits. There may be an underlying hypoarousal in some individuals, and the opposite, an underlying hyperarousal in other individuals (Viding, 2019). Taking the theory of moral socialization as an example, the hypoaroused child may not react emotionally to others' distress signals, whereas the hyperaroused child may miss these signals due to their own overwhelming emotional state (Kimonis, Frick, Munoz, et al., 2008). In terms of phenotypical expression, i.e., what can be seen outwardly, these individuals may seem identical (Craig et al., 2021). It is assumed that there lies a stronger genetic or temperamental factor underneath the hypoarousal-version (likened to primary psychopathy) resulting in deficits in emotion processing, which further results in a diminished sensitivity for other people's emotional cues. The hyperarousal-version (likened to secondary

psychopathy) is by Craig et al. (2021) speculated to result from an environmental adaptation coming about from parental rejection (possibly also other negative parenting practices or dispositions), exposure to traumatic events, and other adverse social contexts the child may have encountered resulting in emotional dysregulation further leading to hyperarousal and overwhelmingly high levels of negative affect (Cicchetti, 2016). Although there has been a tendency to view CU traits as negatively correlated with anxiety, Cecil et al. (2018) found that those with simultaneous high levels of CU traits and concurrent anxiety subjectively report more severe childhood maltreatment. These youth also report higher levels of concurrent psychological distress, ADHD symptoms, and risky behavior (incl. substance use, suicidal ideation, and unsafe sex). The authors point to the need for individually tailored clinical treatment and assessment strategies given the variation in individual functioning across the groups of CU traits youth. These statements are backed up by other authors, who see the presence of anxiety as a possible indicator for treatment success (Kubak & Salekin, 2009; Lee et al., 2010).

Multifinality, in turn, entails that individuals starting on the same major developmental pathway may end up on different paths further on as a product of what happens to them and what these experience or environments alter in terms of adaptations (Cicchetti & Rogosch, 1996). Certain psychopathic traits or -trait configurations might lead to differential outcomes. In essence some people with psychopathic traits, yet with protective factors present, or by partaking in treatment, may thus develop into more functional adults. This is also evident from the discussion on the centrality of the antisocial component, as multifinality may partly explain why CU traits are not a definite predictor of antisocial conduct by itself.

There seem to exist multiple developmental pathways leading to psychopathic disorders, pathways that have different temperamental, neural, genetic, and environmental risk factors connected to them. The different combinations of such factors may maintain,

cause increases in, or alter the stability of the personality traits and the risk associated with these traits (Andershed, 2010; Hawes et al., 2018). There are also seemingly subtle differences between groups with overtly similar dysfunctional expressions related to affective and interpersonal functioning (Cecil et al., 2018; Dadds et al., 2012; Rogers et al., 2006). I believe this may prove important not just for understanding the etiology, but also for treatment, as children on the different developmental trajectories are likely to have different capacities and needs that should be attended to. Different configurations might be causally dependent on different mediating etiological mechanisms and therefore also dependent on different treatment interventions thought to influence this mediator.

Treatment

As of August 2021, there exists no registered Cochrane review concerning psychopathy, and by implication therefore none concerning treatment of psychopathy in children and adolescents. Yet, both the strong heritability indicating a biological underpinning, as well as the stability across time indicate that these are traits that may consolidate unless intervened upon. There has even been a debate as to whether psychopathy is treatable at all, with opposing sides brandishing everything from non-treatability (Harris & Rice, 2006) to optimism regarding treatment (Polaschek & Skeem, 2018; Salekin, 2002). A more neutral position has been found in those that point out that a lack of currently effective treatments is not synonymous with the condition not being treatable (D'Silva et al., 2004; Lösel, 1998). Certain factors seem to be more problematic when addressing treatment in this population, such as non-compliance with treatment or low treatment motivation (Falkenbach et al., 2003; Gretton et al., 2001; Hecht et al., 2018) as well as little motivation for change (Salekin et al., 2010). It may therefore be necessary to consider how to overcome these hindrances if treatment is to be effective. Child and adolescent clients may generally present with relatively low motivation across many different disorders (Weisz et al., 2013). Due to the

experience child and adolescent therapists generally have with these issues they may be even better suited at dealing with ensuring proper engagement if such issues arise (Weisz et al., 2013).

Despite the pronounced motivational issues in children and adolescents, prognosis is better for delivering treatment early in life (Salekin et al., 2010). The call for early intervention rests on an underlying principle central to children in general; that malleability of personality characteristics is greatest early in life, and that this applies also to childhood CU-traits (Hawes & Dadds, 2007).

There have been three reviews more specifically concerned with the affective component of psychopathy, the CU traits (Frick et al., 2014; Hawes, Price, et al., 2014; Wilkinson et al., 2016). They all suggest that the children with CU traits may benefit from intensive adjunct or tailored treatments that target their specific vulnerabilities and associated characteristics, such as treatment that focuses on parent-child emotional engagement (Hawes, Price, et al., 2014) and behavioral treatment focused on positive reinforcement, cognitive behavioral therapy (CBT), emotion recognition training and interventions designed to foster positive emotions (Wilkinson et al., 2016). Frick et al. (2005) have also argued for early and intensive intervention for children with CU traits due to evidence for a consistent association between early involvement with the legal system and an increased severity of adjustment problems in adulthood for this group. Furthermore, investigating psychopathic traits and their treatment in children and adolescents might prove more fruitful than later in life when deviant lifestyles and the more severe consequences of presenting with a psychopathic personality might blur or contaminate the clinical picture presented (Ribeiro da Silva et al., 2012; Viding & Larsson, 2010). However, adolescents with stable CU traits of 'high' magnitude likely need interventions that can change multiple aspects of their lives, cutting across avenues that include the individual itself, the family, and their

parenting practices, as well as community-level treatment targets (Waller et al., 2018). In adulthood these traits are considered rather stable across time and contexts and may follow an individual persistently over the remainder of the life course (Andershed, 2010; Hawes et al., 2018; Lynam et al., 2007).

Skeem et al. (2011) points out that no-one has posed the question of whether the assumed core personality traits of psychopathy could be reduced or treated. Personality is not just a descriptive construct, but it is thought to be stable across time, situations and maybe even more importantly to be an inner causal determinant for behavior (Matthews et al., 2009), yet amenable to change (Blonigen, 2010). Personality can be seen as something that might take both longer time and more effort to alter, yet it may also be seen as the core of what needs to be altered to bring about affective-, cognitive- and behavioral change in a person. Roberts et al. (2017) point to how it was traditionally not at all uncommon to track personality traits specifically as it was often considered the focal point of intervention (Worchel & Byrne, 1964). Focusing on a personality-based conceptualization has direct implications for treatment studies, since one would regard changes in personality functioning indicative of treatment success. Instead, much of the research has been interested in associated behavioral outcomes, such as different forms of aggression, substance abuse, and recidivism (Polaschek & Skeem, 2018), neglecting the assumed personality dysfunction driving the disorder. Validated, reliable tools able to track changes in personality functioning in psychopathic individuals have earlier been amiss in the field (Polaschek & Skeem, 2018; Skeem et al., 2011). The centrality of personality is evident also from the discussion on antisociality, which can be considered as a secondary feature associated with the psychopathic personality. Reduction in overt antisocial behavior does not yet indicate that more subtle but likewise detrimental intra- and interpersonal affective and cognitive patterns are resolved. It is important to note that asserting the centrality of personality change as an indication of treatment success is agnostic

about the direction of causation, which may also work in the opposite direction, such that personality is in fact influenced through behavioral change.

The somewhat misleading emphasis on the behavioral aspect is also evident from treatment studies of psychopathy or CU traits in children and adolescent, which are usually conducted in conjunction with CP. The specific diagnosis of CD is the only diagnostic category in DSM–5 (American Psychiatric Association, 2013) that mentions CU traits directly. It is however not the case that this is the only diagnosis where CU traits might influence the outcome of treatment in a negative direction. CU traits also seem relevant in combination with ADHD and oppositional defiant disorder (ODD) but possibly to a lesser extent (Herpers et al., 2012). In regards to CP, Hawes, Price, et al. (2014) particularly points out that there is more evidence concerning risk of CU traits moderating outcome of interventions for ODD than for CD, contrary to the findings of Herpers et al. (2012). Furthermore, there are often samples where both conditions (ODD and CD) are simultaneously diagnosed in the same individuals to further complicate the matter (Hawes, Price, et al., 2014). Thus, establishing information about comorbidity will be an issue with such clients both to get clearer results and to make conjectures about treatment that fits. This also leaves wide open the question of whether these programs have effect on the remaining two psychopathy dimensions (GM- and DI traits), as these or personality composites of all psychopathic traits may not be the monitored outcomes.

Continuous measurement including baseline and post-treatment measures, and ideally across multiple timepoints, would be required to see whether levels or configurations of the psychopathy dimensions change with treatment (Comer & Kendall, 2013; Hecht et al., 2018; Kazdin, 2009). Following up treatment interventions at months to years after the intervention is highly recommended in mapping out efficacy and longitudinal permanency of outcome measures (Chambless & Hollon, 1998). Further, measuring outcomes across treatment

modalities and -modules is also preferred to identify the aspects of treatment that are most efficacious, as well as intermixing personality measures with other relevant outcome measures to get a more reliable outcome measure (Comer & Kendall, 2013).

A major reason for investigating psychopathic traits as manifested very early in life comes from the evidence of moderate temporal stability of psychopathic trait dimensions in childhood (Frick, Kimonis, et al., 2003; Waller et al., 2012) and adolescence (Obradović et al., 2007). Evidence for this is found when investigating mean-level, rank-order, and individual-level stability (Cauffman et al., 2016; Dadds et al., 2005). There are also indications for psychopathy scores being stable from childhood into adult life, as evidenced by correlation between psychopathy scores in childhood and psychopathy scores in adulthood (Hawes et al., 2017; Hemphala et al., 2015; Lynam et al., 2007).

The current review

To my knowledge only one meta-analysis has been conducted in the last twenty years that investigated treatment of psychopathic traits in children and adolescents (Salekin, 2002). It was later heavily criticized for being too inclusive and relying on faulty methodology (Harris & Rice, 2006). There have also been conducted some systematic reviews (D'Silva et al., 2004; Wilkinson et al., 2016) and some recent comprehensive reviews (Polaschek & Skeem, 2018; Ribeiro Da Silva et al., 2020; Salekin, 2017) on this specific topic. The three reviews mentioned in the previous section on treatment were more specifically concerned with the affective component of psychopathy, the CU traits (Frick et al., 2014; Hawes, Price, et al., 2014; Wilkinson et al., 2016). Previous research related to child and adolescent psychopathic traits has not satisfyingly considered the full psychopathy construct with measures on more than one assessment point, but has rather been focused on changes in behavior, or on one subdimension of the psychopathy construct, mostly CU traits.

The research has also been lacking in methodological rigor, reflecting the adult field in that regard (Hecht et al., 2018).

The main purpose of the present review is to determine whether existing treatment studies provide evidence of melioration across the overarching psychopathic personality structure as measured on more than one subdimension of the personality-based measures and with valid and reliable measurement tools. I aim at reviewing all studies where measures of psychopathic personality traits have been established and measured at more than one assessment point, at the outset disregarding whether they have only measured the CU-dimension of the construct or if they have applied a multidimensional measure as recommended by multiple authors in the field (Lilienfeld, 2018; Salekin, Andershed, Batky, et al., 2018; Salekin, Andershed, & Clark, 2018). I do this because any personality change is interesting even if it only appears in one personality subdimension.

Furthermore I will evaluate the extent to which the entirety of the psychopathy construct or more than one subdimension is considered in these treatment studies on children and adolescents. Frick et al. (2014) commend the separation of CP youth from those with concurrent CP and CU traits, as this has helped refine the understanding of the causal factors related to severe CP alone. They suggest that this may lead to enhanced, tailored treatments benefitting all children with CP. I believe that this speculated refinement and improvement of the treatment in general may be furthered by investigating all the subdimensions of psychopathy (CU, GM, DI) and their interrelations as they relate to CP and possibly other disorders as well, creating an even larger knowledge base for treatment. I also want to look closer at whether etiologically informed studies exist that have taken aspects of tailored- and adjunct treatments into consideration.

I did expect the methodological quality of the studies currently published in this field to be inconsistent based on the existing literature regarding earlier treatment studies

(Hecht et al., 2018; Polaschek & Skeem, 2018). This review will therefore also consider methodological features of intervention studies directed at children and adolescents to identify potential shortcomings that may prevent us from clarifying the issue of treatment efficacy in this subgroup.

To recapture, the present review aims to determine (1) if the existing intervention studies have applied a measure of the psychopathic personality and not merely its behavioral corollaries, and that this measure aligns with an up-to-date multidimensional conceptualization of the construct; (2) if the current treatments delivered are fitted (tailored- or adjunct treatments) to the current knowledge about etiological mechanisms; (3) whether the reviewed studies meet the methodological standards of an intervention study, and lastly: (4) whether psychological treatment of psychopathic personality traits is effective in children and adolescents. The ability of the reviewed literature to clarify this final research question is most obviously dependent on the extent to which they satisfy question number three. Questions number one and -two, on the other hand, concern the validity of the measurement instrument and type of intervention.

Methods

This study was conducted in accordance with the principles outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Liberati et al., 2009).

Protocol and registration

The analysis, inclusion and exclusion criteria of this review were specified in advance. The methodology is documented in the PROSPERO International Prospective Register of Systematic Reviews (reg.nr. 247848).

Eligibility Criteria

For inclusion, studies were eligible if the following criteria were met: (1) participants were children (mean age <18 years old) from community, clinical, juvenile justice, or research settings; (2) reported at least one measure of psychopathic traits (self-report, or from an informant such as a parent, teacher, or therapist) using measures that are established in the field or supported by closer psychometric investigation; (3) the study design included pre- and post-measures of change on personality variables pertaining to psychopathic traits; (4) included a therapeutic or psychotherapeutic intervention with assumed psychological (causal) mechanisms; (5) articles that were published in peer-reviewed journals and written in a language mastered by the author or assistant reviewer (English, Norwegian, Swedish, Danish and Finnish)

Exclusion criteria were established such as to keep studies from inclusion that: (1) had a N = 1 design or were case reports; (2) the manuscript/article was either non-published or not peer reviewed. I did not exclude studies directed at CP/CD if there were relevant measures of psychopathic traits due to the overlap between the two conditions mentioned earlier. Studies adhering to a randomized controlled trial (RCT) methodology are clearly superior in clarifying treatment efficacy and establishing cause-effect relationships. Still, interventions aimed to ameliorate psychopathic traits in children and adolescents are in the somewhat early stages of research, and therefore a broader set of inclusion criteria will be helpful in establishing a more nuanced picture of the treatments offered to this high-risk, high-need group of children and adolescents at the present time.

Search Strategy

A search was conducted in online databases deemed relevant for the topic in question, and in accordance with recent recommendations for optimization of systematic review searches (Bramer et al., 2017). More specifically search queries were built and carried out in

four databases: APA PsycINFO (Ovid), MEDLINE, PROQUEST Psychology Database, and Web of Science – Core Collection. Regarding specific search syntaxes, these were built according to the database-specific requirements, which to some degree vary as to how logical operators are combined and utilized.

The search string included combinations of three sets of search terms. The first set included search terms related to treatment or symptom reduction: ‘treat*, “symptom reduction”, interv*, therap*, psychotherapy*’. The second set of search terms included the psychopathy construct as represented by the search terms: ‘psychopathy, psychopathic’. These were spelled out fully due to the overlap with ‘psychopathology’ that would arise if the terms were to be truncated with an asterisk as in ‘psychopath*’. The third set of search terms included target populations/groups and attempted to narrow the search down to those aged below 18 years: ‘youth*, juven*, adoles*, child*, teen*, toddl*, young*, boy*, girl*’.

The three main sets all needed to be part of the final search results, and thus were operated on by a conjunctive operator AND, whereas all subsets were combined by the disjunctive OR. This ensured that all search hits included terms from all the three main sets, such that the search was conducted across treatment variables, the psychopathy construct, and the relevant target populations/groups simultaneously. No restrictions on publication date were imposed on the initial searches, which returned 3114 studies in total combining hits in the four different databases.

Data extraction

Extraction of data from the included studies was conducted by the first author. A form specifically designed for this purpose was applied. The form assessed information about demographic characteristics of the participants (mean age, age range, gender distribution), study characteristics (year of study, country of origin, sample size, sample type, study design, measurement methods and instruments, informant frequency and -type, intervention type,

format and delivery, modularity of treatment (unimodular vs. multimodular), tailoring of treatment, control group, blinding procedure, assessment point frequency and -intervals, and randomization).

Assessment of study

A screening of methodological quality of the included studies will be performed using an adaptation of the Psychotherapy outcome study methodology rating form developed by Öst (2008). The adapted form will be referred to as the Nightland Mountain rating schema (Appendix A). The original 22 items were reduced to 10. This will yield quantitative scores ranging from zero to 20 for the studies evaluated. The particularities of the research questions and the populations at hand made us keep items we deemed overarching and/or possible to evaluate. In general items regarding reliability of diagnosis and reliability and validity of outcomes were kept together with evaluations of design features, analysis, and replicability. Since the main question is whether there are psychotherapies that work, the items regarding number of therapists, training of therapists, therapist competence as well as treatment adherence were removed. The two first items in the original rating form regarding diagnosis were also removed as diagnosis in this case was not DSM- or ICD-based. The methodology evaluation was performed by the author together with PhD-candidate researcher Julia Tuominen. If ratings differed regarding the studies evaluated, consent was reached through discussion.

Results

Study Selection

Literature searches for this review were conducted on two separate dates. Searches conducted in Web of Science Core Collection, APA PsycINFO, and MEDLINE were

conducted August 11th, 2021, whereas the search in PROQUEST psychology database was conducted August 14th, 2021. The subsequent study selection progress was conducted in three stages. First, all 3114 findings in the four databases were exported to the reference managing software Endnote 20.1 for Windows (Clarivate Analytic, 2021). Figure 1 provides a flow-diagram of the study extraction process.

Altogether, 959 of the initial 3114 studies were found through Web of Science – Core Collection when applying the search strings and restricting the search to ‘topic’. In this database studies in English (895) and Danish (1) were included, thus leaving a total of 896. All 64 studies in languages that were not part of the inclusion criteria were discarded.

In APA PsycINFO (Ovid) 2104 studies were initially found. The database allows for limiting searches on grounds of ‘peer reviewed’ and ‘human’, which was done. This left a total of 1287 studies for inclusion.

The MEDLINE search yielded an additional 714 studies. After professional advice from the university librarian the search was not limited further in this database due to most of the search hits already being journal articles or systematic reviews. A limitation would only narrow the search return down by 3 hits which seemed a number appropriate to rather review manually for inclusion.

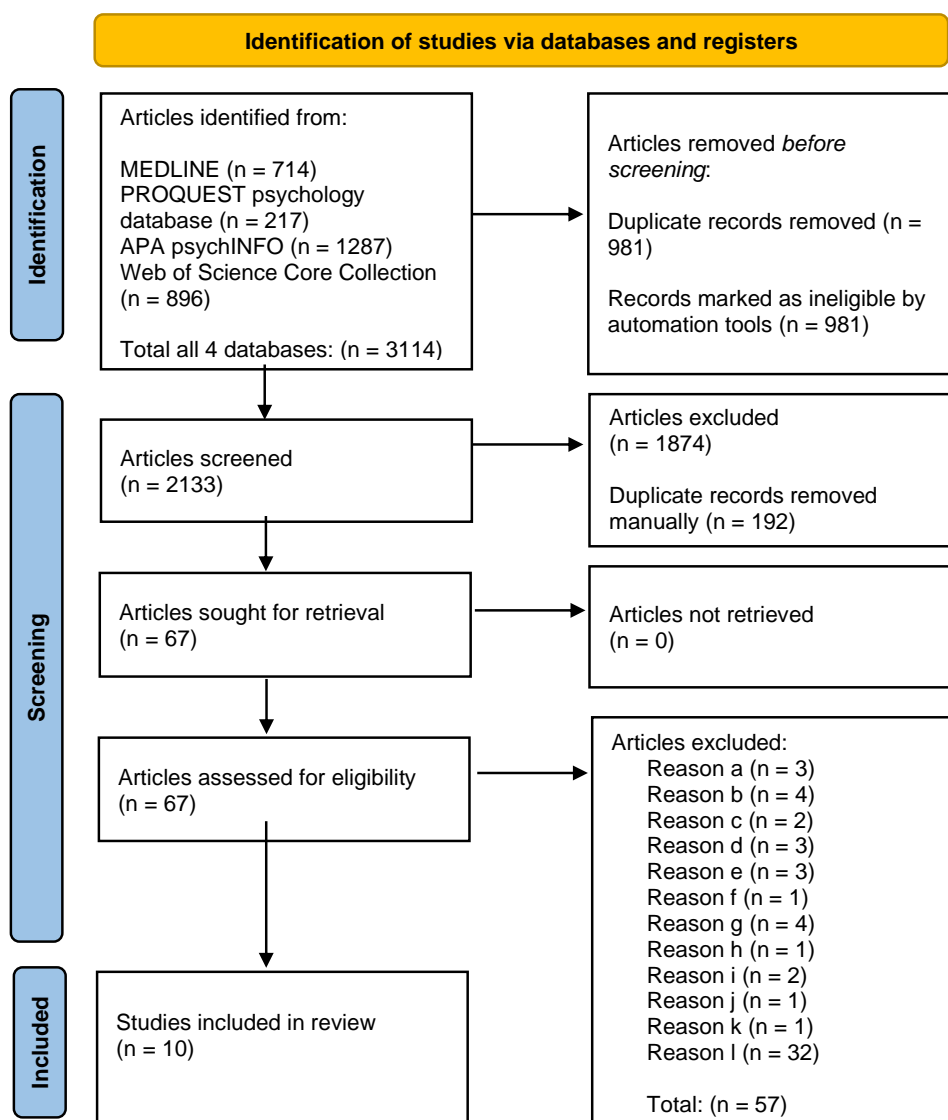
An additional database search was conducted in PROQUEST – Psychology Database. This search was limited at the outset to ‘scholarly journals’ and ‘peer-reviewed’, although this did not result in fewer hits than when trying the search without these limitations. The search produced 217 hits.

Second, 981 duplicates were removed automatically by application of the EndNote software before titles and abstracts were screened by the author and his assistant. This resulted in a total of 2133 studies. After the automatic removal of duplicates, an additional manual screening for duplicates still present was conducted. Simultaneously titles and abstracts were

screened. This resulted in a further trimming of studies, leaving 1941 studies. Of the 192 studies thus removed, all were duplicates that Endnote did not identify during the automatic duplicate removal process. From the remaining 1941 studies that were left a further 1874 studies were removed after a first inspection. This was because they did not feature the appropriate inclusion criteria, or they featured exclusion criteria in abstract and/or title. This resulted in 67 studies being included for further review. Finally, full versions of the 67 articles still included after the first screening were downloaded. These were read and the studies sorted based on eligibility criteria for final inclusion in the review. Disagreements between screeners were resolved by mutual consent.

This process resulted in an additional 25 studies being removed because they were: (a) studies that investigated treatment with nutritional supplements (n = 3); (b) case studies (n = 4); (c) addressed pharmacological treatment (n = 2); (d) subjects were adults (n = 3); (e) articles written in a language that the authors do not master (n = 3); (f) mixed behavioral treatment with a pharmacological intervention (n = 1); (g) from an era before the psychopathy construct was initially termed (n = 4); (h) summarizing another article that was included in the review (n = 1); (i) systematic reviews (n = 2); (j); psychosurgery (n = 1); (k) open trial with no quantifiable data available (n = 1).

This left 44 studies for further review. Of these 10 were finally included in the final review. In total 34 studies were excluded since these on closer inspection did not fulfill inclusion criteria of having (l) at least one relevant measure of psychopathic traits and/or pre- and post-treatment measures of such traits.

Figure 1*Flow chart of study selection*

Descriptives

An outline of the authors, year of publishing, country, sample size, percentage male participants, context, and age of participants can be found in Table 1. Of the 10 included studies, all were published in the English language. After the initial screening there were no community samples left for inclusion. The study by Manders et al. (2013) included a mixture

of clinical, self-referred youth, and youth in a correctional setting where the participants were court mandated. The two samples were equal in size.

Table 1
Descriptives

Study	Year	Country	N	% Male	Age		Context
					M	SD	
Hawes & Dadds	2007	Australia	49	100	6.3	1.6	Clinic
Butler et al.	2011	UK	108	83.6	15.1	1.1	Home
Caldwell et al.	2012	USA	127	100	16.1	0.9	Correctional
Salekin et al.	2012	USA	24	100	14.7	0.8	Correctional
Manders et al.	2013	Netherlands	256	73.4	16.1	1.3	Mixed
Carroll et al.	2017	Australia	49	85.7	8.9	0.9	School
Houghton et al.	2017	Australia	13	100	9.5	0.6	School
Waschbusch et al.	2020	USA	46	78.3	9.3	1.4	Summer camp
Ribeiro da Silva et al.	2021	Portugal	119	100	15.8	1.1	Correctional
Thøgersen et al.	2021	Denmark	113	50.9	14.4	1.9	Clinic

Methodological characteristics

The scores that each individual study obtained on the Nightland Mountain rating schema can be found in Table 2. The schema and complete explanations of the 10 items can be found in Appendix A.

None of the included studies applied blinding procedures; neither for the statisticians doing post intervention-analysis, for the personnel screening for suitable participants, for the

clinicians conducting treatment, nor for the participants, or for their respective families. Six out of 10 studies lacked a control group. By implication these same studies also lacked a randomization process and shared this with one additional study of the four studies that did apply control groups. Only three studies applied both a randomization procedure and a control group (Butler et al., 2011; Manders et al., 2013; Waschbusch et al., 2020). Five studies had two assessment points while the remaining five studies had three assessment points where they measured psychopathic personality traits. Pre- to posttreatment assessment ranges differed from 8 weeks (Waschbusch et al., 2020) to 30 weeks (Butler et al., 2011). Only the study by Ribeiro da Silva, Rijo, Brazao, et al. (2021) delivered a treatment specifically targeting psychopathic traits, therefore receiving two points on the sixth item of the rating scale called "Treatment". Most other treatments did however encompass settings and/or treatment aspects assumed to be important for children and adolescents with psychopathic traits.

Additional methodological aspects not included in the Nightland Mountain rating schema, such as the specific measurement tools and intervention methods, are outlined in the next chapter.

Table 2*Methodology*

Authors	Blinding	Assign.	Design	Power analysis	Assessm.	Treatment	Control	Attrition	Statistics	Clinical signif.	SUM
Butler et al.	0	2	2	2	1	1	0	2	2	0	12
Caldwell et al.	0	0	0	0	0	0	0	0	1	0	1
Carroll et al.	0	0	0	1	0	1	0	0	2	0	4
Hawes & Dadds	1	0	0	0	1	1	1	1	2	1	8
Houghton et al.	0	0	0	0	0	1	0	2	2	0	5
Manders et al.	0	2	1	0	0	1	0	2	2	0	8
Ribeiro da Silva et al.	0	1	1	1	1	2	2	2	2	0	12
Salekin et al.	0	0	0	0	1	1	0	0	2	0	4
Thøgersen et al.	0	0	0	0	0	1	0	1	2	0	4
Waschbusch et al.	0	2	2	0	0	1	1	2	2	0	10

Notes. Complete explanations of the items and the basis for receiving 0-2 points can be found in Appendix. Assign. = non-random, random, or stratified assignment to treatment/therapist. Assessm. = number of assessments points and length of follow-up. Treatment = treatment based on a manual and replicable. Control = control of concomitant treatments. Clinical signif. = whether the clinical significance of the treatment effects was discussed.

Measurement and treatment

See Table 3 for complete information on the measurement tools and treatment methods applied in each independent study.

Four of the 10 studies report both total scores as well as scores on psychopathic trait subdimensions, while six of the 10 studies report data for all subdimensions. All included studies used at least one measure to tap psychopathic traits. Five studies applied the Antisocial process screening device (APSD; Frick & Hare, 2001). In the study by Ribeiro da Silva, Rijo, Brazao, et al. (2021) the Youth psychopathic traits inventory (YPI; Andershed et al., 2002) was used in its shortened version (YPI-S; van Baardewijk et al., 2010), a self-report questionnaire based on the triarchic conception of Cooke and Michie (2001). Three studies applied different versions of the Inventory of callous-unemotional traits (ICU; Frick, 2003); two (Manders et al., 2013; Waschbusch et al., 2020) using the original ICU 24 item version, with one study (Thøgersen et al., 2021) applying the newer shortened version, the ICU-12 (Hawes, Byrd, et al., 2014). Two studies (Carroll et al., 2017; Houghton et al., 2017) conducted in Australia used the Constellation of affective and interpersonal behaviors screening instrument (CAIBSI; Houghton et al., 2013) in conjunction with The Antisociality Scale for Children and Adolescents (ASCA; Houghton et al.) which measures both personality traits related to psychopathy as well as antisocial behavior as rated by teachers. Only four studies applied two measures of psychopathic traits. These were the studies by Carroll et al. (2017) and Houghton et al. (2017) both applying a combination of the CAIBSI and the ASCA. Additionally, Manders et al. (2013) used both the narcissism and impulsiveness scales from the APSD as well as the Inventory of callous-unemotional traits ICU 24-item version for measuring of callous unemotional traits. While Ribeiro da Silva, Rijo, Brazão, et al. (2021) used the aforementioned YPI-S in its Portuguese translation (Pechorro et al., 2015) as well as the Proposed Specifiers for Conduct Disorders (PSCD;

Salekin & Hare, 2016) in its Portuguese version (Ribeiro Da Silva, Sousa, et al., 2021). It might also be noted that Hawes and Dadds (2007) merged parts of The strengths and difficulties questionnaire (SDQ; Goodman, 1997) with the APSD to create a two-factor solution of their own. The SDQ is however not considered a measurement tool for psychopathic traits.

All 10 studies included multimodular and multimodal interventions. Parents were part of the treatment or received parental training/education in four studies; these were the two Multisystemic therapy (MST) studies by Butler et al. (2011) and Manders et al. (2013), the functional family therapy (FFT) study by Thøgersen et al. (2021), and the Summer camp treatment study by Waschbusch et al. (2020). MST is an intensive, systemic treatment directed at the family and based in the home. It is directed at young people with serious antisocial behavior (Henggeler & Borduin, 1990). FFT is a structured, intensive, short term family focused treatment built on cognitive-behavioral and family systems interventions directed at adolescents that are delinquent and substance-using (Alexander et al., 2013). The summer camp treatment program delivered by Waschbusch et al. (2020) was a modified behavioral treatment emphasizing reward. They left out many traditional punishment-based components of behavioral treatments. One study was solely intended for and directed at parents (Hawes & Dadds, 2007). Two studies (Carroll et al., 2017; Houghton et al., 2017) were classroom based, with both the child receiving one-to-one treatment (eight sessions) as well as more systemic peer-directed classroom activities (five sessions). Both these studies applied KoolKIDS, a cognitive-behavioral school-based intervention program made for children aged 7-11 years with early onset antisocial behavior and who are currently suspended from school or at risk for such suspension. In the three studies by Caldwell et al. (2012), Salekin et al. (2012), and Ribeiro da Silva, Rijo, Brazao, et al. (2021) the intervention was delivered solely to the child or adolescent. However, in the Mendota juvenile treatment center

(MJTC) program one invites family members or supportive sources from the community into individual counselling sessions whenever possible (Caldwell et al., 2012). The MJTC is a treatment program that emphasizes interpersonal processes, development of conventional social bonds, and skills that can replace delinquent associations and activities. The program is delivered by multidisciplinary teams to aggressive, severely behavior-disordered boys who have failed to adjust to a usual juvenile correctional setting (Caldwell & Van Rybroek, 2005). The PSYCHOPATHY.COMP intervention applied by Ribeiro da Silva, Rijo, Brazao, et al. (2021) combines motivational components from motivational interviewing with a base of compassion focused therapy (CFT) to bring about change in detained youth that present with psychopathic traits. It was specifically designed to reduce psychopathic traits and disruptive behavior through compassionate motivation (Ribeiro da Silva et al., 2017). In the Salekin et al. (2012) study the intervention was didactic and group-based. They applied the Mental Models program directed at increasing motivation and positive emotions while simultaneously decreasing interpersonal callousness in youths.

Table 3

Measurement tools and treatment methods

Authors	Measurement	Measured construct				Type of informant			Treatment	Duration (weeks)
		Total	CU	GM	DI	Self	Parent	Teacher		
Hawes & Dadds	APSD/SDQ	✓ ^a	✓ ^a	✓ ^a	✓ ^a	✓			Parent Training Intervention	10
Butler et al.	APSD	✓				✓			MST	11-30
Caldwell et al.	APSD	✓	✓	✓	✓				MJTC	26
Salekin et al.	APSD	✓	✓	✓	✓				Mental Models	12
Manders et al.	APSD/ICU-24	✓ ^a	✓ ^a	✓ ^a	✓ ^a	✓			MST	16-24
Carroll et al.	CAIBSI/ASCA	✓	✓	✓	✓			✓	KoolKIDS	12
Houghton et al.	CAIBSI/ASCA	✓	✓	✓	✓			✓	KoolKIDS	12
Waschbusch et al.	ICU-24	✓	✓			✓		✓	Modified behavioural treatment	8
Ribeiro da Silva et al.	YPIS/PSCD	✓	✓	✓	✓				PSYCHOPATHY.COMP	20
Thøgersen et al.	ICU-12	✓	✓			✓		✓	FFT	12-24

Notes. CU = callous-unemotional, GM = grandiose-manipulative, DI = daring-impulsive, APSD = Antisocial process screening device, SDQ = Strengths and difficulties questionnaire, ICU(-12/24) = Inventory of callous unemotional traits, CAIBSI = the Constellation of Affective and Interpersonal Behaviours Screening Instrument, ASCA = The Antisociality Scale for Children and Adolescents, YPIS = Youth Psychopathic Traits Inventory-Short, MST = multisystemic therapy, MJTC = Mendota Juvenile Treatment Center, FFT = functional family therapy.

^a An approximation to the actual subdimension.

Effect of treatment

Here I will focus specifically on the variables related to personality functioning when reporting the studies' findings.

Butler et al. (2011)

A significant decline in total APSD scores from pre- to post-treatment for the group delivered MST was found as rated by parents, with a moderate Hedges' corrected effect size ($g = .53$). However, the decline in APSD scores were not reflected in the youths' own self-reported APSD scores which remained at the same level as before treatment, showing a non-significant decrease in scores. The TAU group had a significant increase in APSD scores as rated by parents, while for this group there was a non-significant slight increase in self-report measures from the youths themselves.

Caldwell et al. (2012)

The time spent in treatment significantly affected psychopathy levels in the treatment group. A repeated measures ANOVA shows a reduction in total APSD scores (partial eta-squared = .37), as well as subdimension scores are reduced over the treatment period; CU traits (partial eta-squared = .29), GM traits (partial eta-squared = .14), and DI traits (partial eta-squared = .34). All the findings were significant, and the effect sizes were large. The authors further wanted to see if the improvement on personality variables could predict positive behavior. Through a series of hierarchical regressions, it was found that decreases in psychopathic traits could predict positive behavior in the institution.

Carroll et al. (2017)

Impulsivity ($d = .38$) and self-centeredness ($d = .49$) decreased in a significant manner and showed lower scores post-intervention, with small to medium effect sizes. CU traits ($d = -.10$) and manipulateness ($d = .35$) did however not show significant differences from pre- to post-intervention. These findings were related to the self-report via CAIBSI. On the teacher

reported ASCA there were signs of significant changes with a reduction of CU traits ($d = .46$), irresponsibility ($d = .42$), and manipulative charm ($d = .34$). However, there were not found significant reductions in grandiosity ($d = .25$) as rated by teachers. For each of the reported significant changes pertaining to both self-report and teacher ratings Cohen's d scores were indicative of small to medium effect sizes. A reduction in physical and verbal proactive aggression was reported, which are factors linked to the expression of psychopathic traits. The reductions of aggression and psychopathic traits (by the authors referred to as 'antisocial') were equivalent to small effects sizes ($d = .37 - .46$).

Hawes and Dadds (2007)

CU traits were reduced from both pre-treatment to post-treatment ($d = .49$) and from pre-treatment to 6-months follow-up ($d = .57$). Antisocial traits (here including GM-, and DI traits as well as behavioral dimensions) were also reduced from pre-treatment to post-treatment ($d = .40$) and from pre-treatment to follow-up ($d = .62$). No significance values were reported. Regarding CU traits, 50 percent presenting within clinical range at pretreatment was reduced to 22.2 percent post treatment, with a further reduction to 20.5 percent at follow-up. Antisocial traits were reduced from 50 percent pretreatment to 26.7 percent post treatment and further to 18.2 percent at follow-up. Post hoc analyses conducted with groups according to their CU stability pattern revealed that the boys with the most stable high CU trait pattern presented with the poorest outcome when measured at follow-up. Although CU traits and Antisocial traits were similarly stable, scores on these two variables had different predictors at follow-up. Antisocial trait levels were predicted by baseline antisocial scores-, as well as mother's education and CU scores posttreatment. CU trait scores were only predicted by baseline CU trait scores.

Houghton et al. (2017)

Decreases in the child self-reported manipulative- ($d = .35$) and narcissism ($d = .51$) scores were found as measured with the CAIBSI. This is equivalent to a small effect size for manipulateness and a medium effect size for narcissism. However, none of these four factors were reported as changing significantly. As for CU traits and impulsivity the numbers seem to indicate small increases, however with less than small effect sizes and of non-significance. On the ASCA teachers reported decreases in all psychopathic traits. Small effect sizes were found for manipulateness ($d = .21$), CU traits ($d = .23$) and impulsivity ($d = .38$), while a moderate effect size was found for decreases in narcissism ($d = .50$). Again, no changes were significant.

Manders et al. (2013)

CU traits did not decrease in a significant manner in either of the treatment conditions (MST and TAU). Impulsiveness decreased in both conditions; MST ($d = .50$) and TAU ($d = .29$). Narcissism was significantly decreased only in the MST condition ($d = .29$). These changes were judged small and nonsignificant between conditions. MST overall was not more effective than TAU in decreasing psychopathic traits. For externalizing problems, they did however find MST more effective of the two. The only predictor effect found was for impulsiveness. This trait predicted more externalizing problems after completion of treatment, reported by the adolescents themselves, but not when reported by their parents. CU traits and narcissism moderated intervention effect on externalizing problems as rated by both adolescents and parents. When relying on self-report, adolescents with low levels of psychopathic traits showed significant decreases in externalizing problems only when in the MST condition. Adolescents with high levels of psychopathic traits did not show significant decreases in externalizing problems in any of the conditions. When relying on parental report, adolescents with high levels of psychopathic traits showed decreases in both conditions

regarding externalizing behavior. Adolescents with lower levels of psychopathic traits only showed significant decreases in externalizing behavior when they were in the MST condition.

Ribeiro da Silva, Rijo, Brazao, et al. (2021)

The treatment group showed greater decrease in total psychopathic trait scores as measured with both the YPIS ($d = 1.12$) and the PSCD ($d = .65$). These effect sizes are large and medium respectively. On the subdimensions of the YPIS the treatment group showed a decrease in GM- ($d = .58$) and CU traits ($d = .63$) equivalent of a medium effect sizes. Additionally, there was seen a reduction in the DI trait dimension (in the YPIS referred to as ‘impulsive-irresponsible’) equivalent of a large effect size ($d = 1.04$). The PSCD subdimensions also showed evidence of change after treatment. There were decreases in the CU- ($d = .72$) and DI ($d = .53$) subscales, with all changes equaling medium effect sizes. The GM dimension however decreased equivalent to a small effect size ($d = .23$). None of the reported effect sizes were accompanied by indications of significance.

This group of authors also point to the result for the treatment as usual (TAU) group being indicative of the ineffectiveness of ordinary treatment regimes in changing psychopathic traits. On the contrary they state that it may contribute to maintenance or increases in such traits. There was shown stability or slight increases in mean scores for both total YPIS and PSCD scores and the instruments’ subdimensions in the TAU group from both baseline to posttreatment and from baseline to 6-month follow-up (Ribeiro da Silva, Rijo, Brazão, et al., 2021).

Salekin et al. (2012)

Psychopathic personality traits were measured using the APSD at three assessment points, pre-, mid-, and post treatment. For total scores they found a reduction with a medium effect size ($d = .67$) after treatment. For interpersonal traits they found a reduction with a small effect size ($d = .35$), while they found decreases both for affective traits ($d = .10$) and

impulsivity ($d = .12$), both beneath the small effect size threshold. Whether these findings were significant was not reported. These authors also measured positive emotions and amenability to change, aware of the challenges these traits pose in this group of children and adolescents. Positive emotions increased throughout the treatment period ($d = .40$). All three variables related to treatment amenability also showed increases throughout treatment and had modest effects. Changes from baseline to posttreatment were small for ‘awareness of problems’ ($d = .32$), and moderate for ‘motivation to change’ ($d = .49$) and ‘considerate and tolerant’ ($d = .54$).

Thøgersen et al. (2021)

For the 216 participants where post-treatment data of CU traits as scored with the parent-reported ICU-12 were available, 37 participants (17.1 %) showed a reliable decline in such traits. 166 (76.9 %) participants presented no reliable change, while 13 participants (6.0 %) showed reliable increases. Repeated measures effect size of the group average reduction equalled a small effect ($dz = .36$). In the subgroup consisting of 60 adolescents with elevated pretreatment ICU-12 scores, 26 participants (43.3 %) were reliably declining, 32 participants (53.3 %) showed no change, and 2 (3.3 %) showed reliable increases in CU trait scores. This equalled an average effect ($dz = .91$).

Waschbusch et al. (2020)

At the end of treatment, the authors found significant improvements compared to pre-treatment scores for both the standard behavior therapy (SBT; $d = .44$) and the modified behavior therapy (MBT; $d = .39$) as reported with the ICU-24 by parents (the article is ambiguous whether this was a parent-teacher composite score or parent score). However, they did not find any difference between treatment conditions, such that the MBT treatment that was tailored to children with co-occurring CP and CU was not superior to a behavioral TAU.

Discussion

The current study systematically reviewed literature on treatment of psychopathic traits in children and adolescents. Sample characteristics, methodological practices, and treatment effects were subsequently evaluated. It seems evident that there are multiple levels of contention connected to the reviewed 10 studies regarding the following three questions posed in the beginning: (1) Whether the treatment interventions had applied multidimensional measures able to track personality changes, (2) whether they were fitted to align with known etiological factors, and (3) whether the treatment studies met the methodological standards expected from a treatment intervention study. The questions regarding etiological fit proved somewhat subordinate as an implication of what turned out to be major issues regarding methodology and construct measurement, as well as the original intention of the studies. The observed limitations in all the above three points, in turn, are carried over to and influence the confidence with which the final question can be answered, namely (4) whether treatment of psychopathic personality traits was effective in children and adolescents. I will evaluate each of these four points in turn.

Descriptives

Due to the absence of time constraints regarding publication date in the systematic search it is possible to conclude that treatment of children and adolescents is a relatively new research field, with Hawes and Dadds (2007) being the oldest study qualifying for inclusion. An explanation for this finding might be that previous research have lacked relevant measurement tools. Alternatively, studies published earlier than 2007 have only applied relevant measurements at baseline, and therefore were excluded from this review as at least two assessment points were needed for inclusion.

Regarding geographical locations, the studies included were predominantly from English speaking countries. There was a general Western bias, as all studies were from Australia, the USA, or Western European countries. Regarding geographical origin, it should be noted that different cut-off levels for psychopathy measurement have been warranted for different Western countries (Cooke et al., 2005). In the featured studies cut-off levels were arbitrary, as most studies did not report such levels making it uncertain whether participants treated scored at clinical levels or not. The lack of such reporting subsequently will also make it difficult to generalize findings across different nations.

There was an overrepresentation of males in the included studies. This might be because psychopathy is more prevalent in men (Coid, Yang, Ullrich, Roberts, & Hare, 2009), but it might also be due to the way psychopathic traits manifest in behavior in males as opposed to females, and due to knowledge about how measurement tools might apply differently to males and females (Verona & Vitale, 2018). The study by Ribeiro da Silva, Rijo, Brazao, et al. (2021) intentionally excluded females: “as they represent a small percentage of detained youth in Portugal, and any possible idiosyncrasies from this cohort would be understated” (Ribeiro da Silva, Rijo, Brazao, et al., 2021, p. 502).

There was also a clear tendency for the populations studied to be non-community samples, possibly reducing external validity of the findings. The studies were not from community (preventive)- or even selected samples, but from samples where CP and psychopathic traits were indicated. Four of the samples were from correctional settings, which is a very specific context, yet possibly natural given the statistics mentioned in the introduction regarding the risk psychopathic traits pose. What proves effective in such a context might prove ineffective in another. However, in his meta-analytic overview of the primary factors that characterize effective interventions with juvenile offenders, Lipsey

(2009) found that the context under which treatment is delivered does not seem to influence effectiveness.

Still, generalizing findings to possibly more well-functioning children and adolescents with psychopathic traits may pose a problem. It is also suggested that a specific subgroup of psychopathic individuals exists, called “successful psychopaths”, who are characterized by higher scores on IQ and executive functioning, and who are therefore planful enough to avoid detection or even pursue non-criminal ways of achieving their aims (Benning et al., 2018; Lilienfeld, Watts, & Smith, 2015). However, as mentioned in the introduction, there seem to be possible deleterious aspects for society and the immediate social sphere related to these individuals as well. If one wants to gain knowledge about these budding ‘successful psychopathic’ individuals or gain knowledge about how to identify or intervene upon them, studies conducted with community samples would most likely be needed. This is also directly related to conceptualization issues, as a dimensional view where antisociality is not a necessary premise may make this group a crucial component of the bigger picture.

Methodology

Methodological rigor in the reviewed studies was evaluated with the help of a rating scale adapted from Öst (2008), here referred to as the Nightland Mountain rating schema (See results in Table 2 and the full schema in Appendix A). A recurring theme in psychopathy research has been the lack of studies conducted with enough quality and precision to reasonably conclude whether treatment works (Polaschek & Skeem, 2018). This review clearly indicates that this still merits truth. On the rating scale (Table 2) none of the studies obtained more than 12/20 points, and most studies were scored considerably lower. The two studies that scored the highest was the ones by Butler et al. (2011) and Ribeiro da Silva, Rijo, Brazao, et al. (2021). The study by Butler et al. (2011) was not directly related to reduction of psychopathic traits, but rather an independent evaluation of MST effect on 108 British

households where an adolescent (age 13-17 years) was considered an offender. Of the two studies explicitly related to reduction of psychopathic personality features, the one by Ribeiro da Silva, Rijo, Brazao, et al. (2021) obtained the highest score (12/20), while the study by Caldwell et al. (2012) obtained a score that was remarkably low (1/20). This puts into question how much one can rely on the findings from the MJTC program employed in the study by Caldwell et al., given its methodological shortcomings.

A general limitation among the identified studies was the lack of control groups. This causes problems with determining whether changes resulted from treatment or other mechanisms such as maturation or regression to the mean. However, given the premise of stability of the psychopathy construct across time (Hawes et al., 2018; Salekin, 2017), the observed changes in levels of psychopathy could be indicative of treatment efficacy. The lack of randomization in most of the studies makes it impossible to rule out confounders that could have caused the observed treatment effects. Neither are possible selection bias and accidental biases ruled out regarding the treatment groups and their assignment.

In treatment studies it is essential to have control of concomitant treatment to ensure that these do not confound results of the intervention being studied. Most studies in this review did not control for this, with the exceptions of Ribeiro da Silva, Rijo, Brazao, et al. (2021). They also obtained additional control from the correctional setting where the treatment was delivered in. An additional feature related to control of confounding not included in the original rating scale, namely, the widespread lack of correction for former treatment experiences, may contribute to expectancy effects in the participants or cause biases in baseline values at the initial assessment (Comer & Kendall, 2013).

None of the studies had in place blinding procedures, and this may very well bias the results (Jadad et al., 1996). It may have done so through demand characteristics, but also more generally in ways related to confirmation bias, especially if the researchers are not

independent from the program they implement. As stated by Butler et al. (2011), there have been less good results in MST studies where the developers have not themselves been involved, citing a meta-analysis on MST by Curtis et al. (2004). This is a well-established bias also pointed out by Comer and Kendall (2013). Many of the studies in this review present with this problem, such as the studies by Salekin et al. (2012) on the Mental Models program, Ribeiro da Silva, Rijo, Brazao, et al. (2021) on their PSYCHOPATHY.COMP program, Houghton et al. (2017) and Carroll et al. (2017) on the KooLKIDS program, and Thøgersen et al. (2021) on FFT. In the latter article the main author is himself invested in implementation of FFT in both Norway and Denmark. Then again, it would probably be more difficult to have independent researchers implement a novel treatment approach before the inventors of the approach themselves have at least undertaken preliminary piloting and/or revisions and training of new therapists in the approach has been undertaken.

The evaluation of statistical analyses may have biased total scores. If one looks closer at the item specifically related to statistical methods in the Nightland Mountain schema, one will find that the bar is set rather low for what is rewarded with a full score. I found it sufficient for rudimentary evaluation but note that most studies would reach a maximum score without necessarily applying the most appropriate statistical tests if the results were numerically fully reported. However, as only one single study did not reach the maximum score, the bias can be said to be systematic by not changing the ranking order of the studies. A more in-depth assessment and expert opinion of the statistical methods applied in each study would be required to point out where the statistical analyses are not optimal or even appropriate for the data or research question at hand. This, again, is a more general problem in the publishing and peer review system. Research shows that changes from unrevised to peer reviewed manuscripts seldomly concern the statistical analyses, and improvements are in general minor (Cobo et al., 2007).

The rating schema also included an item on whether the authors discussed the clinical significance of the findings. There are several possible grounds for this being the weakest methodological aspect. First, only two studies explicitly stated exclusive intent to reduce psychopathic traits. Second, the lack of a common conceptualization, as will be discussed below, precludes common practices regarding cut-off levels. Third and related, psychopathy is not a diagnosis of its own for children and adolescents in the diagnostic systems currently in use, which is why there exist no general guidelines for what should be considered (sub)clinical.

Conceptualization

Psychopathy is a wide construct, and in the individual programs and interventions used in the reviewed studies, the already fuzzy conceptualization is realized through measures with varying ability to map out the three core personality dimensions. The result is that the heterogeneity in conceptualizations is kept downstream, affecting both measurement and evaluation of treatment effects. Heterogeneity is also found in the etiology of the disorder itself (Sandvik, 2014; Viding, 2019) as mentioned in the introduction. Treatment needs in these children and adolescents will therefore be diverse, and probably therefore not captured fully on aggregate group levels without considering the needs of specific subgroups or configurations of the disorder. Thus, it is evident that both etiology and measurement are intimately tied upstream to the conceptualization of the psychopathy construct.

Measurement

Multiple authors recognize the importance of measurement issues and that measurement tools should remain a major focus in future work in the field (Colins & Andershed, 2019; Salekin, 2017). Most contemporary measurement instruments focus on the three dimensions that index functioning in the interpersonal (GM), callous-unemotional (CU),

and behavior/lifestyle dimensions (DI) (Colins & Andershed, 2019). These instruments thus capture the personality dimensions more than the behavioral aspects. However, most of these instruments are self-report or teacher- or parent reported and therefore do not include the archival information or the clinical diagnostic interview that is part of the PCL: YV, not used in any of the reviewed studies. Then again, the PCL: YV has problems of its own (Tsang et al., 2015), and Sellbom et al. (2018) point out how self-report has the advantage of assessing response styles such as ‘malingering’ and ‘positive impression management’, while also pointing out how the PCL-interview lack such indicators.

A much-utilized measure has been the APSD (Frick & Hare, 2001). It is featured in half of the included studies, notably the oldest five studies. It is a teacher- and parent rating tool for assessing psychopathic traits in children and adolescents aged 6-13 years, but also comes in a self-report version. It is yet another measure based on the PCL family of measures. 18 of its 20 items load onto the three factors labelled ‘callous-unemotional’ (affective), ‘narcissism’ (interpersonal), and ‘impulsivity’ (behavioral/lifestyle). Especially its CU traits scale has been criticized (Dillard et al., 2013; Kimonis, Frick, Skeem, et al., 2008; Poythress et al., 2006) and this criticism gave rise to the development of the ICU (Colins & Andershed, 2019). However, the ICU is focused on CU traits, making it sub-optimal when attempting to measure the full triarchic construct. The ICU also has problems of its own, especially pertaining to the validity of one of its three subscales (Cardinale & Marsh, 2020). Seven out of the 10 studies in this review utilized APSD and/or ICU, either by itself or in conjunction with another measure such as in the studies by Hawes and Dadds (2007) and Manders et al. (2013). The authors in both these studies made their own unvalidated hybrid measurement tools. Hawes and Dadds (2007) used prosocial items from the SDQ in combination with the CU subscale of the APSD for the CU factor, and combined both behavior, GM- and DI trait scales in a second factor they called ‘Antisocial’. Manders et al. (2013) applied the ICU-24

and APSD in conjunction, yet this resulted in an unvalidated hybrid measure. In both cases this puts into question the validity of the measures. The only studies that employed full measures of the entire construct using two measurement tools were the studies by Ribeiro da Silva, Rijo, Brazao, et al. (2021), Carroll et al. (2017) and Houghton et al. (2017). Yet, Ribeiro da Silva, Rijo, Brazao, et al. (2021) employed self-report only, while Carroll et al. (2017) and Houghton et al. (2017) utilized measurement tools with uncertain psychometric properties where teachers reported on one instrument (ASCA), while children report on the other (CAIBSI). Thus, it can be noted that in terms of measurement none of the included studies, although providing personality measures from two or more assessment points, hold up to the desired measurement standard ensuring sufficient convergent validity.

The use of cut-offs will also directly influence the construct validity of the applied measurement tools and the comparability of results across studies thereafter. For instance, Manders et al. (2013) report cut-off values, yet dummy coded participants into one of two groups according to whether they were high- or low in psychopathic traits, citing a procedure replicated from Wootton et al. (1997). The problem is that the original study only measured CU traits whereas Manders et al. (2013) measured all three subdimensions. It is obvious that someone presenting with only an elevation of CU score differs from someone with a high score on one of the two other personality dimensions or on several dimensions simultaneously. Nevertheless, the two participants would end up as part of the same falsely dichotomic group.

According to Polaschek and Skeem (2018) there is a need for proper information-gathering with the use of multiple informants, described as particular important when assessing children and adolescents (Comer & Kendall, 2013). The four studies by Butler et al. (2011), Carroll et al. (2017), Houghton et al. (2017), and Waschbusch et al. (2020) all had

more than one source of informant. However, these studies had individual issues regarding instruments used or scores reported. The remaining six studies had only one informant.

Most available measures applied in the assessment of psychopathic traits in children and adolescents are currently lacking in that they are self-report, or that they are screening measures. In the reviewed studies, widespread use of self-report might bias results. Often self-report, especially among children and adolescents with elevated CU traits, seem to be indicative of less decrease in these traits than when parents, teachers, or therapists report. In the case of teachers and parents this may be a result of initial over-estimation of problematic traits, thus with a steeper decline as the families receive professional help (Weisz et al., 2013). However, I also speculate that there might be an inherent problem as to how these children self-report, as they are assumed to have diminished self-reflection capabilities (Sellbom et al., 2018). Additionally, children in general are known to struggle with accurate self-report due to features of cognitive development, assumptions regarding desirable responses, and expressive and language abilities (Comer & Kendall, 2013; Weisz et al., 2013). It is difficult to say how the many different measurement tools may have influenced findings, but it is worth noting that there are known responder biases both for self-report, but also for reports given by informants such as teachers and parents.

Treatment

At the outset, the question of whether treatments would be fitted to known etiological factors was raised. However, after the review it seemed that the results would not be able to answer this question properly. Some of the 10 studies investigated psychopathic traits merely as moderators, yet other studies investigated effects of treatment programs directed at children and adolescents with CP. Psychopathic traits was thus not necessarily intended as the primary treatment target, which makes it less relevant to ask whether knowledge of etiology was incorporated into the treatment methods.

The studies by Ribeiro da Silva, Rijo, Brazao, et al. (2021) and Caldwell et al. (2012) were the noteworthy exceptions by explicitly stating that they aimed to alter psychopathic traits. Ribeiro da Silva, Rijo, Brazao, et al. (2021) implemented a program tailored to achieve changes in psychopathy according to what is known about the specific issues and life experiences of detained youth with psychopathic traits, specifically through avenues of compassion and motivation. Compassion entails cognitive empathic perspective-taking, where understanding other people is more to the forefront than sharing the vicarious feelings of others, as is what is understood as affective-empathy. They also listed threat-sensitivity and an underdeveloped soothing system, which seems removed from the most common conceptualization of full psychopathic personality disorder or elevated CU traits. These are listed together with emotional dysfunctions and a drive system focused on short-term goals, which are more in line with the CU trait/primary psychopathy conception (Ribeiro da Silva, Rijo, Brazao et al., 2021). It is unknown whether they tailored treatment to individuals from these common factors, or whether they applied all factors regardless of their individual psychopathic personality configuration.

Caldwell et al. (2012) also tailored their approach, as the MJTC program is adapted to the etiological factors regarding learning and motivation. It is focused on contingency management and the atypically strong reward focus of individuals with psychopathic traits (Viding, 2019), attempting to alter personality through altering behavior related to these etiological factors. They do this in a reportedly individualized and flexible manner.

Although using intervention methods directed at psychopathic traits, these two studies fail to consider more than a small part of the suggested etiology of the disorder. Also, none of the studies share common etiological assumptions, a precondition for synthesizing results across studies.

Effect of treatment

As noted earlier, there are too many questions left unanswered upstream in the premises to be able to conclude about treatment effect. Despite indications for interpretive caution, a discussion is still warranted.

As seen in the previous chapter, eight of the studies were not directed specifically at psychopathic traits, which limits the extent to which changes can be expected in these traits. However, these studies did include measures of psychopathic traits on at least two assessment points making it possible to consider whether changes in these traits were achieved.

One interesting finding that emerged is the general efficacy of the interventions. Although changes were modest or non-significant, there were changes in the desired direction. Caldwell et al. (2012) and Ribeiro da Silva, Rijo, Brazao, et al. (2021) found decreases in both total scores as well as scores on all subdimensions. This was observed in the few studies employing control groups, such that these effects cannot be completely explained by spontaneous effects that occur over time, such as regression to the mean. This is encouraging and warrants optimism regarding treatability of psychopathic traits. An interesting finding regarding treatment was found in the study by Butler et al. (2011) where both self-report and parental report indicate increases if participants received TAU. This is line with the finding by Ribeiro da Silva, Rijo, Brazao, et al. (2021), that TAU participants stabilized or even had slight increases in psychopathy scores. This may have been due to factors other than the TAU itself, but it showed that all-other-things-equal, the active treatment seemed more effective in producing improvements.

Among the two studies applying MST somewhat dissimilar effects were found (Butler et al., 2011; Manders et al., 2013). Butler et al. (2011) report total APSD scores while Manders et al. (2013) report no such total scores, but rather scores for the three

subdimensions, which makes comparisons difficult. Additionally, Manders et al. (2013) did not really apply the two listed measurement instruments, the ICU-24 and the APSD. Rather they used ICU-24 for CU traits and two scales from the APSD for DI- and GM traits. This was probably done to overcome known problems related to the CU scale of the APSD (Dillard et al., 2013; Kimonis, Frick, Skeem, et al., 2008; Poythress et al., 2006). Yet it echoes a more general problem with regards to comparison across studies that arises when most studies use different measures, an often-encountered problem in the field.

Despite delivering an etiology-informed treatment emphasizing reward, Waschbusch et al. (2020) did not find significant differences in the TAU and the MBT conditions. The authors suspected that the high levels of CU in their sample may have driven the result and that if children scoring lower on CU had been included the findings could have been different. The study only applied the ICU-24 for measurement of psychopathic traits, so it is difficult to gain knowledge of the other relevant subdimensions of psychopathy, whether these traits were present in the sample and whether they saw relevant changes or not. In a study by Caldwell (2011) it was found that the interpersonal dimension was more amendable to change. They further speculated that the interpersonal dimension (GM traits) was more important for improvement in functioning than changes in the affective dimension (CU traits). They believe that it may be the interaction between the two dimensions that hold the key to reduce, among other things, severe proactive violence. By reducing narcissistic manipulation and deception of others (GM traits) and thus the willingness to use others as means to an end the presence of CU traits will not be as detrimental. They see high CU traits as lacking a buffer against GM traits unfolding through behavior. In their study on ringleader bullying Stellwagen and Kerig (2013) found that GM traits (narcissism) was the important moderator. Thus, the possibly most striking affective features of psychopathy may not be the most fruitful avenue for change, and some have claimed that one should probably first change characteristics such as

behavior and impulsivity before attempting to change interpersonal features (Caldwell et al., 2012). A striking feature related to this is that Caldwell et al. (2012) found less change in the interpersonal domain (narcissism/GM traits) while this was the opposite in the study by Salekin et al. (2012) who found their largest subdomain change in the interpersonal score, albeit with a small effect size. Yet, these studies applied treatment directed at completely different aspects of functioning.

Studies like that of Waschbusch et al. (2020) will not be able to provide answers to such questions regarding mechanisms of change precisely since these are not measured, as the instrument is primarily intended for the specifier of CU traits. In this review this problem was repeatedly encountered as many studies only reported parts of the measures, like total scores in Butler et al. (2011) or only the subdimensions like in the study by Manders et al. (2013). This is if they have used measurements tapping all dimensions at all. The studies by Thøgersen et al. (2021) and Waschbusch et al. (2020) only applied two different versions of the ICU. Yet, others resorted to their own unvalidated hybrid versions of measurements, such as Hawes and Dadds (2007) who lumped together behaviors with GM and DI traits. Then they proceeded to make their own unvalidated CU trait measure with the CU subscale of the APSD together with the prosocial scale from the SDQ. Others, like Carroll et al. (2017) and Houghton et al. (2017) used measures of their own making, a child self-reported CAIBSI complemented by the teacher-reported ASCA. These instruments are based on a four-factor model of psychopathic traits (Houghton et al., 2013), yet again making comparisons a conceptual difficulty.

The study by Caldwell et al. (2012) presented a highly selected group of most troubled juveniles. The 29-bed facility was run by a local hospital and admitted juveniles that had not been able to adjust to a normal juvenile correctional facility. In that way the results showing progress are uplifting. However, one might ask whether regression to the mean is at play, both

due to the lack of a control group and the very high levels of misconduct and elevations in APSD scores at baseline. Additionally, the youths were not screened for exclusion criteria that normally would apply, such as low IQ scores, psychosis, and neurological deficits, such that the role of comorbid conditions and ameliorations in them in the observed effects are unknown.

The only intervention exclusively directed at parenting was the one by Hawes and Dadds (2007). They saw changes in the desired direction resulting from treatment. Notably this study had a very low mean age in the participating children. There exists evidence for parent training interventions causing lasting reductions in CU traits in early childhood (Hawes, Price, et al., 2014). However, there seems to be less effect for such parenting interventions in older children (Bjørnebekk & Kjøbli, 2017). This leaves open whether the implemented program would have been as effective with an older sample.

Limitations of this review

This review was limited to published, peer-reviewed papers from scientific journals, excluding grey area literature such as unpublished studies and non-peer reviewed literature. It has been suggested that researchers should aim for inclusion of unpublished literature in meta-analyses and systematic reviews. However, data from unpublished studies can introduce bias itself (Higgins et al., 2019). It can do so in multiple ways. First, unpublished studies that I would have been able to locate would be likely to reflect an unrepresentative sample of all available unpublished studies. Additionally, unpublished studies may be of lesser methodological quality than published studies (Higgins et al., 2019). In a review of 60 meta-analyses that included both published and unpublished studies, it was revealed that unpublished studies were less likely to conceal intervention allocation adequately, and also less likely to blind outcome assessments (Egger et al., 2003). By inclusion of peer-reviewed studies only, the scientific standard should be ensured at a minimum level while at the same

time achieving representativeness of the currently published literature on treatment of psychopathic traits in children and adolescents.

In my review the focus was on change of the core personality traits. A lack of change in personality does not mean that no change has taken place. Change can also occur in behavior, and historically much more research has been conducted on the behavioral outcomes related to treatment of individuals with psychopathic personality traits. It is also a limitation of this review that I chose not to focus on other outcomes than personality as “it is optimal and preferred that multiple targets be assessed in the treatment evaluations” (Comer & Kendall, 2013, p. 33). Yet this possibly refers more to the original studies than to this review per se where the stated goal was to find changes in what seems to be the core of psychopathy, namely personality.

Implications

The lack of conceptual agreement regarding psychopathy could possibly be overcome by applying measures that map all the known subdimensions; CU-, GM-, and DI traits as well as various behavioral outcomes. The two additional dimensions have been found to have both an additive effect as well as key differential biological and psychological correlates to the CU dimension (Salekin, 2017). Studies using the APSD, ICU and/or excerpts of items from these instruments, when assuming to measure CU traits and linking them to external outcome variables, in fact measure confounding elements of the two other trait dimensions. To eliminate such flaws in future research it is advised that one either use the more refined versions of said instruments or apply one of the newer instruments especially tailored for the purpose of identifying psychopathic traits. Information would then neither be lost due to theoretical convictions regarding relative importance of the various subdimensions nor essentialism regarding what constitutes the ‘core’ of psychopathy.

The Child Problematic Traits Inventory (CPTI; Colins et al., 2014) is one example of such a new instrument. This is an instrument designed to screen for psychopathic traits between ages 3-12 years. It is developed by the same authors that developed the YPI, and has been thoroughly validated (Colins et al., 2021) in a clinical sample (Colins et al., 2020), with multiple informants (López-Romero et al., 2019) and across cultures (Colins et al., 2018; Luo et al., 2019; Wang et al., 2018). The thoroughness in regard to validation cross culturally, with multi-informant and diverse samples (community and clinical) may prove promising for application of these instruments in future treatment research. Hopefully the next wave of treatment studies will use updated multidimensional measurement tools more apt at addressing current issues regarding possible treatment subgroups and tailored interventions for these subgroups.

All the 10 studies included in this review were multimodular, meaning that they addressed different aspects of functioning through different treatment strategies as part of their programs. This entails that dismantling the exact components that drive change is difficult. Such causal directions and drivers are usually what treatment studies look for, and therefore it would probably be wise to conduct more unimodular studies or dismantling studies on treatment for psychopathy in children and adolescents in the future, or possibly apply statistical methods that can designate such components. Another interesting avenue would be to do therapeutic knock-out studies, where one delivers treatment but in one group has the therapists ‘knocking-out’ (e.g. not delivering) certain therapeutic factors or ingredients that are thought to be effective to see whether this holds true.

In the review it became evident that only two studies (Carroll et al., 2017; Houghton et al., 2017) had more than one measurement tool for psychopathic traits, while also using a multi-informant information-gathering strategy. However, the different informants (child and teacher) answered different instruments. None of the studies combined a structured clinical

assessment of psychopathic traits with self- or observer report. In the field of child and adolescent psychopathy it has recently been pointed out that most measures in this age segment are self-report or screening measures and that for diagnostic purposes it would be ideal to implement a practice where more than one measure is applied. It is suggested that at least two assessment tools are used in concert and that these tools are supplemented by a rigorous clinical interview. Additionally it is suggested that the data collection includes multi-informant data (Ribeiro Da Silva et al., 2020). This is clearly something the research field needs to take into consideration.

Another aspect that probably needs closer consideration is the reliance on chronological age. As noted regarding the Hawes and Dadds (2007) study there are possible differences in program effects as a function of chronological age. Additionally, there might be much to gain from considering measures of puberty phase. None of the studies have looked closer at pubertal phase, and chronological age ranges often included participants separated by as much as 6 years of age, making it unlikely that these participants are in the same pubertal phase. Pubertal phase may directly relate to the optimal timing of treatment, and thus not measuring this may hinder timing treatment to sensitive developmental periods (Viner et al., 2017). This could have consequences for treatment effects as different pubertal stages are related to various biological-, and cognitive changes (Blakemore et al., 2010), and therefore also psychosocial processes directly related to treatment (Viner et al., 2017). Future studies should consider pubertal phase by also measuring this in conjunction with the full array of psychopathic subdimensions to gain full knowledge of how pubertal phases may be related to specific treatments or treatment components. Much could potentially also be gained from considering known gender specific correlates (Colins, Fanti, Salekin, et al., 2017), with potentially unique etiology.

Regarding epistemological issues that seemed to appear while conducting this review, some authors seem to posit that secondary variants may be “behavioral phenocopies” and not true “classical” psychopathy (Viding, 2019, pp. 75-76). Yet, there seems to be evidence of children with high CU traits experiencing anxiety and negative affect (Cecil et al., 2018; Kubak & Salekin, 2009; Lee et al., 2010) which makes the distinction more nuanced, especially if new findings point to primary psychopathy (the CU component) potentially not being moderated by stressful life events (Eisenbarth et al., 2019). I wonder if statements such as those by Viding are not indicative of a discovery process prematurely shutting down. How can we talk about tailoring treatment to etiological needs when we still do not know the full picture? It seems a misnomer when certain voices in this field use the term ‘psychopathy’, when the sole factor of CU traits is essentially what is considered. CU traits are often confounded with other personality dimensions, both in theory, methodology and measurement as proven also by the practices in studies reviewed. It might be that certain variants/types of psychopathy (Hicks & Drislane, 2018; Patrick, 2018; Sellbom & Drislane, 2021) require different tailoring and at different times. I therefore find it somewhat circular and misguided to approach the field with a narrow focus on CU traits potentially disregarding interactions and unique contributions from the other personality subdimensions. Additionally, it is worth noting that there is no consensus of what even constitutes the ‘classic psychopath’, as evident from the historical writings (Karpman, 1941; Koch, 1894), some of which predate the Cleckleyan conceptualization (1941).

Another open question would be how much one can expect treatments to alter these individuals. There are expected phenotypical limits to the expression of underlying genotypes. In development this is sometimes referred to as the reaction range, a general developmental restriction regarding individual potential (Gottesman, 1963). This principle may also apply to children and adolescents with psychopathic traits. This means that there are certain limits to

what you can achieve in terms of betterment. Individuals might change a lot for the better but still stop short of the functional level of their peers. Thus, ‘a cure’ might be to hope for more than what is possible. Rather achieving the best possible functioning should be the aim of treatment endeavors.

Ethical considerations

Referring to the introduction, one question that has been at the forefront of the discussion regarding ethical aspects of identifying, intervening and treating children and adolescents seems to be the issue of labelling. Possibly negative aspects of labels such as ‘psychopathic traits’, ‘limited prosocial emotions’ or the likes of them should be outweighed by the benefits of treatment. The labels have been associated with adverse outcomes in certain contexts for the individuals in question (Edens et al., 2003; Edens et al., 2017; Prasad & Kimonis, 2018). Then again, naïve children have peer-rated children high in psychopathic traits (CU) as less likeable and higher in socially undesirable characteristics even without formal labels available (Matlasz et al., 2020). One study seemed to find that clinicians viewed those labelled ‘psychopathic’ as riskier regarding future violence and criminality. Still, the same study also pointed out that the diagnostic labeling did not influence treatment (Rockett et al., 2007). Additionally, amongst a set of American judges it was found that the diagnostic labels themselves were not the reason for the negative outcomes but more so the diagnostic criteria underpinning the labels (Murrie, Boccaccini, et al., 2007). This probably resembles debates regarding many other labels, in both psychiatry and elsewhere, and more generally it touches upon well-known heuristics and social psychological phenomenon. As listed in the chapter on psychopathy in children and adolescents, these children have a decreased quality of life and disadvantaged on various arenas of life. Therefore, the potential risks of a diagnosis should be carefully weighed against the benefits of early intervention.

Conclusion

Overall, the present review indicates that there exist a diverse set of treatment methods that potentially have a positive effect on reducing psychopathic traits in children and adolescents. However, many of the possibly effective components in these treatment programs are veiled by conceptual and methodological limitations. Conceptual ambiguities make it difficult to draw direct conclusions as to how the effects are related to a contemporary triarchic personality theory of psychopathy. Methodological limitations, such as those pertaining to randomization and control groups, bring into question the cause-effect relationship between the treatment and the observed amelioration in psychopathic traits. Thus, there is an urgent need for conceptual clarification and increased methodological rigor. Better validated measures built upon clearer conceptualizations of psychopathy should be used in tandem in future research. As the field becomes clearer regarding common operationalizations, and perhaps even common conceptualizations, there may be opportunities afforded by also applying such techniques as dismantling studies and therapeutic knock-out studies to pinpoint exactly which modalities and modules of treatment may be most effective with different subgroups of children and adolescents. Beyond treatment efficacy, in the continuation there would also be a need to establish effectiveness of treatments, as the transition from signs of efficacy to evidence for effectiveness has proven a gap to mind. To attain increased clarification with the aim of helping these children and adolescents to lead richer more productive lives a massive amount of future research is needed.

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Appendix A

Nightland Mountain rating schema

1. Use of blind evaluators

- 0 Poor. Blind assessor was not used (e.g. assessor was the therapist, assessor was not blind to treatment condition, or the authors do not specify).
- 1 Fair. Blind assessor was used, but no checks were used to assess the blind.
- 2 Good. Blind assessor was used in correct fashion. Checks were used to assess whether the assessor was aware of treatment condition.

2. Assignment to treatment

- 0 Poor. Biased assignment, e.g. patients selected their own therapy or were assigned in another non-random fashion, or there is only one group.
- 1 Fair. Random or stratified assignment. There may be some systematic bias but not enough to pose a serious threat to internal validity. There may be therapist by treatment confounds. N may be too small to protect against bias.
- 2 Good. Random or stratified assignment, and patients are randomly assigned to therapists within condition. When theoretically different treatments are used, each treatment is provided by a large enough number of different therapists. N is large enough to protect against bias.

3. Design

- 0 Poor. Active treatment vs. WLC, or briefly described TAU.
- 1 Fair. Active treatment vs. TAU with good description, or placebo condition.
- 2 Good. Active treatment vs. another previously empirically documented active treatment.

4. Power analysis

- 0 Poor. No power analysis was made prior to the initiation of the study.
- 1 Fair. A power analysis based on an estimated effect size was used.
- 2 Good. A data-informed power analysis was made and the sample size was decided accordingly.

5. Assessment points

- 0 Poor. Only pre- and post-treatment, or pre- and follow-up.
- 1 Fair. Pre-, post-, and follow-up < 1 year.
- 2 Good. Pre-, post-, and follow-up = or > 1 year.

6. Manualized, replicable, specific treatment programs

- 0 Poor. Description of treatment procedure is unclear, and treatment is not based on a publicly available, detailed treatment manual. Patients may be receiving multiple forms of treatment at once in an uncontrolled manner.
- 1 Fair. Treatment is not designed for the disorder, or description of the treatment is generally clear and based on a publicly available, detailed treatment manual, but there are some ambiguities about the procedure. Patients may have received additional forms of treatment, but this is balanced between groups or otherwise controlled.
- 2 Good. Treatment is designed for the disorder. A detailed treatment manual is available, and/or

treatment is explained in sufficient detail for replication. No ambiguities about the treatment procedure. Patients receive only the treatment in question.

7. Control of concomitant treatments (e.g. medications)

0 Poor. No attempt to control for concomitant treatments, or no information about concomitant treatments provided. Patients may have been receiving other forms of treatment in addition to the study treatment.

1 Fair. Asked patients to keep medications stable and/or to discontinue other psychological therapies during the treatment.

2 Good. Ensured that patients did not receive any other treatments (medical or psychological) during the study.

8. Handling of attrition

0 Poor. Proportions of attrition are not described, or described but no dropout analysis is performed.

1 Fair. Proportions of attrition are described, and dropout analysis or intent-to-treat analysis is performed.

2 Good. No attrition, or proportions of attrition are described, dropout analysis is performed, and results are presented as intent-to-treat analysis.

9. Statistical analyses and presentation of results

0 Poor. Inadequate statistical methods are used and/or data are not fully presented.

1 Fair. Adequate statistical methods are used but data are not fully presented.

2 Good. Adequate statistical methods are used and data are presented with M and SD.

10. Clinical significance

0 Poor. No presentation of clinical significance was done.

1 Fair. An arbitrary criterion for clinical significance was used and the conditions were compared regarding percent clinically improved.

2 Good. Jacobson's criteria for clinical significance were used and presented for a selection (or all) of the outcome measures, and conditions were compared regarding percent clinically improved.