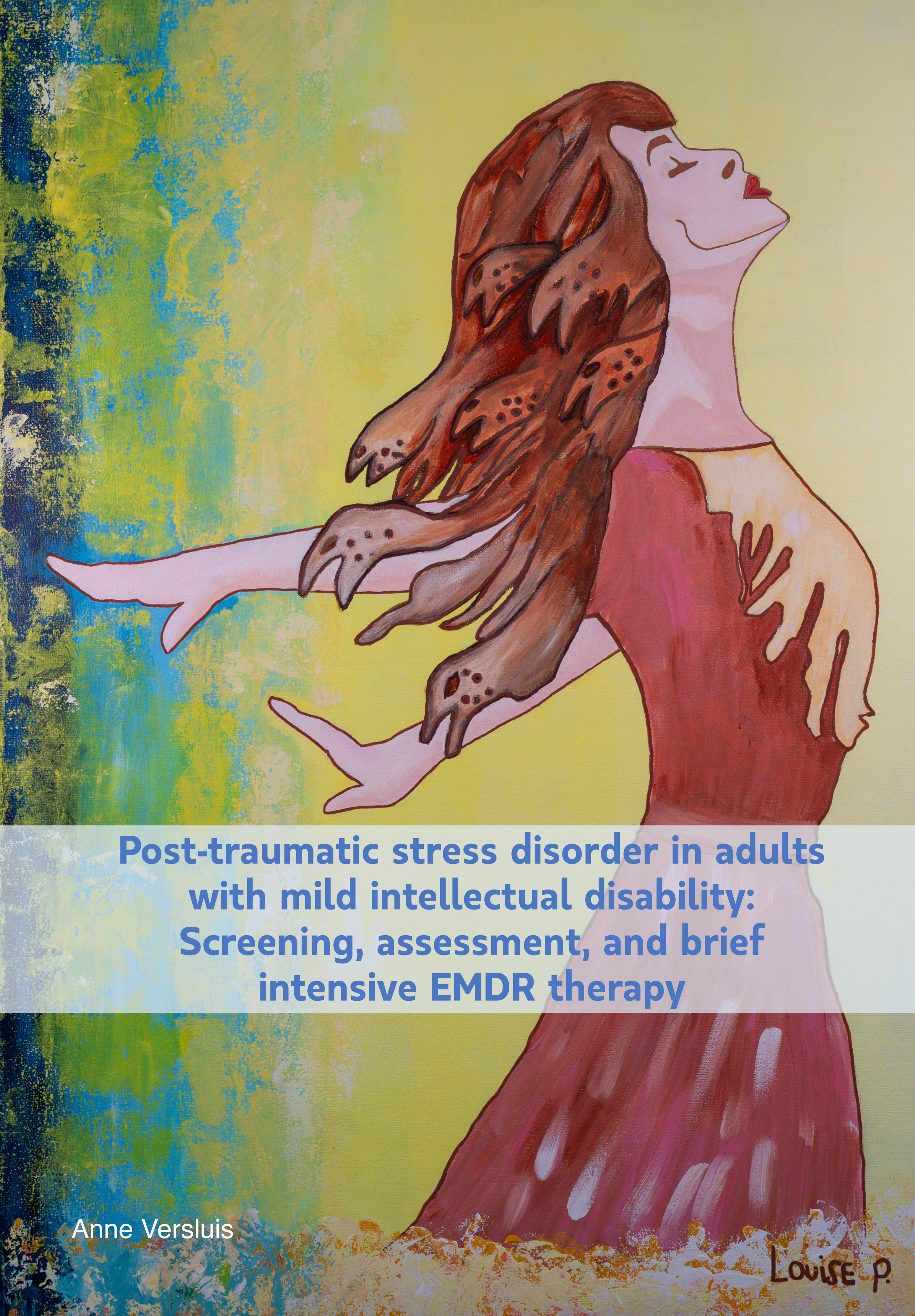

Post-traumatic stress disorder in adults with mild intellectual disability: Screening, assessment, and brief intensive EMDR therapy

Anne Versluis

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Colophon

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Anne Eileen Versluis
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te Meerkerk

Promotoren:
Prof. dr. H.C.M. Didden
Prof. dr. A.D. de Jongh (Universiteit van Amsterdam)
Prof. dr. C. Schuengel (Vrije Universiteit Amsterdam)

Copromotor:
Dr. L. Mevissen (Mevissen Psychotrauma)

Manuscriptcommissie:
Prof. dr. mr. E. van Ee
Prof. dr. R.J.L. Lindauer (Universiteit van Amsterdam)
Dr. C. de Roos (Levvel)
Prof. dr. T.A.M.J. van Amelsvoort (Maastricht University)
Prof. dr. P.T. van der Heijden

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by

Anne Eileen Versluis
born on February 2, 1983
in Meerkerk

PhD supervisors:
Prof. dr. H.C.M. Didden
Prof. dr. A.D. de Jongh (University of Amsterdam)
Prof. dr. C. Schuengel (Vrije Universiteit Amsterdam)

PhD co-supervisor:
Dr. L. Mevissen (Mevissen Psychotrauma)

Manuscript Committee:
Prof. dr. mr. E. van Ee
Prof. dr. R.J.L. Lindauer (University of Amsterdam)
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Chapter 1

General introduction

Hilda is a 32-year-old woman with a mild intellectual disability. Her parents were no longer able to provide the care she needed when she was 12 years old. At that time, she started behaving differently and showed much more aggression than before. She was placed out of home and subsequently lived in various care institutions for individuals with intellectual disabilities. Hilda has been living in her current home for several months. She receives intensive support from professional caregivers 24 hours a day. Since moving into her current home, the complexity of her care needs has increased significantly. She frequently exhibits physical and verbal aggression towards other residents and professional caregivers. She often has trouble sleeping and tends to isolate herself, particularly when she is with others. According to her file, she has autism spectrum disorder in addition to mild intellectual disability. During a meeting that was held because the professional caregivers were concerned about Hilda, one of them noted that her behaviour was very different from what the team at her previous home had reported. While her professional caregiver suspected that this might be related to her autism spectrum disorder and her move to her current home, he wondered if something else had happened. Given that Hilda's file also described a significant behavioural change at the age of 12, the team decided to conduct a diagnostic interview for trauma and stressor-related disorders. During the assessment, Hilda revealed that she had been sexually abused several times by someone when she was 12 and by a neighbour from her current home several months ago. Following the diagnostic assessment, Hilda was diagnosed with post-traumatic stress disorder (PTSD). When the results were shared with her parents and one of her professional caregivers, they were all surprised to learn that she had experienced sexual abuse. This was not documented anywhere in her file, and she had never mentioned it. However, they also admitted that no one had ever asked her about it. They agreed that PTSD symptoms should be treated. Hilda decided to try eye movement desensitisation and reprocessing (EMDR) therapy and was scheduled to see the

> *therapist every Tuesday morning. However, she found EMDR therapy too overwhelming. She suddenly bursts into tears when she has to talk about her memories of sexual abuse during a session, and it feels as if she is being re-abused. In the days following therapy, she often thought about the sexual abuse and became more aggressive. A few days after the session, Hilda decided to discontinue therapy. "I'd rather forget about it than have to think about everything again", she told her caregivers. Her PTSD symptoms have persisted, and problems in her daily life, such as poor sleep, withdrawal, and behavioural problems, continue.*

There are many more individuals like Hilda, with a similar life history and similar psychological and behavioural problems. Although emerging studies suggest that post-traumatic stress disorder (PTSD) may be relatively common in adults with mild intellectual disability or borderline intellectual functioning (MID-BIF), it still often goes unrecognised in these individuals (Mevissen et al., 2020a; Nieuwenhuis et al., 2019), partly due to the lack of suitable diagnostic instruments until recently (Hoogstad et al., 2025). Once diagnosed, it is important that individuals with MID-BIF receive PTSD treatment, as untreated PTSD can cause serious problems (e.g. Benedict et al., 2020; Davis et al., 2022; Gibson et al., 2020). Although the number of studies is growing, especially on EMDR therapy in individuals with MID-BIF (e.g. Byrne et al., 2020; Penninx et al., 2021; Verhagen et al., 2023), there is still limited evidence regarding the effectiveness of EMDR therapy for adults with MID-BIF, especially for those with severe behavioural problems. Research in individuals without MID-BIF shows that intensive trauma-focused treatment is particularly effective, as it leads to a relatively fast reduction in PTSD symptoms and shows low dropout rates (e.g. Niles et al., 2018). To date, no studies have explored the effectiveness of brief intensive EMDR treatment in adults with MID-BIF and severe behavioural problems, or how these individuals experience such an intensive format of trauma treatment. Addressing these knowledge gaps is essential to improving PTSD recognition and to developing more effective and tailored treatment approaches for these individuals.

The purpose of this dissertation is to improve the identification, diagnostic assessment, and treatment of PTSD in adults with MID-BIF. This chapter provides an introduction to the four studies of this dissertation. It starts by a description and definition of (individuals with) MID-BIF and PTSD. It then focuses on PTSD in individuals with MID-BIF, addressing the increased risk, frequent under-recognition, and current challenges in diagnostic assessment and screening. The chapter continues with an overview of PTSD treatments for adults with MID-BIF, including EMDR therapy and intensive trauma-focused treatment. Finally, it presents the aims and outline of this dissertation.

Individuals with mild intellectual disability or borderline intellectual functioning

According to the Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition, Text Revision (DSM-5-TR; American Psychiatric Association [APA], 2022) and the American Association on Intellectual and Developmental Disabilities (AAIDD; Schalock et al., 2021), intellectual disability (ID) is characterised by deficits in intellectual functioning, including reasoning, problem-solving, planning, abstract thinking, judgement, academic learning, and learning from experience, as confirmed by both clinical assessment and standardised tests of intelligence. Additionally, deficits in adaptive functioning must significantly impair an individual's ability to meet developmental and sociocultural standards for personal independence and social responsibility. These deficits must be present in at least one of the three domains of adaptive functioning: the conceptual domain (e.g., skills in memory, language, reading, writing, mathematical reasoning, and practical knowledge); the social domain (e.g., interpersonal communication, social judgment, and the ability to form and maintain relationships); and the practical domain (e.g., personal care, daily living skills, and independent functioning). Deficits in adaptive and intellectual functioning must have their onset during the developmental period of an individual.

Although the DSM-5-TR no longer defines ID based on strict IQ thresholds, IQ ranges are still commonly used in clinical practice and research contexts to describe ID levels associated with different degrees of severity. Individuals with MID are generally considered to have IQ scores between

approximately 50 and 70, and individuals with BIF with IQ scores between 70 and 85 (DSM-IV-TR, APA, 2000; Kaal et al., 2015). BIF does not meet current diagnostic criteria for an ID in most countries. In the DSM-5-TR, BIF is included under the V-code 'Other conditions that may be a focus of clinical attention' and as one of the conditions that significantly affect treatment or prognosis (APA, 2022). Individuals with BIF often experience functional and contextual challenges similar to those with MID. Individuals with MID and BIF are often grouped together since they share many characteristics and support needs (Orío-Aparicio et al., 2025). Based on data from 2018, the number of individuals with MID-BIF is estimated at 6.4% of the Dutch population, amounting to approximately 1.1 million people (Woittiez et al., 2019).

Mental health conditions, such as anxiety disorders, mood disorders, PTSD, and behavioural problems are frequently reported and appear to have a high prevalence among individuals with MID-BIF (Kildahl & Helverschou, 2024; Nieuwenhuis et al., 2019; Noel, 2018; Rittmannsberger et al., 2020; Totsika et al., 2022; Westera et al., 2025). As a result of comorbidity, these individuals often have intensive care needs (APA, 2022; Boat & Wu, 2015). This dissertation focuses on individuals with MID-BIF, mental health problems and behavioural problems, who receive intensive 24-hour care in supported housings.

Post-traumatic stress disorder

According to the DSM-5-TR, PTSD is a mental health condition that arises after exposure to a potentially traumatic event (Criterion A). An event is considered potentially traumatic if it involves directly experiencing, witnessing, or hearing about imminent death, serious injury, or sexual violence against oneself or someone close. PTSD involves a range of symptoms, including intrusive symptoms (PTSD cluster B), avoidance symptoms (PTSD cluster C), negative alterations in cognition and mood (PTSD cluster D), and alterations in arousal and reactivity (PTSD cluster E). To be diagnosed, these symptoms must persist for at least one month and cause significant distress or impair daily functioning, including social or work-related activities (APA, 2022). Approximately 81% of individuals in the Netherlands experience at least one potentially traumatic event during

their lifetime. While most recover naturally from its psychological impact, an estimated 11% develop PTSD at some point in their lives, with a current prevalence of approximately 1.3% (Hoeboer et al., 2025). Whether an individual develops PTSD following a potentially traumatic event depends on various factors, including genetic predisposition, type and number of traumatic events, and protective factors such as social context (Aftyka et al., 2017; Brewin et al., 2000; Iversen et al., 2008; Lindsay et al., 2020). Additionally, a low IQ is associated with increased vulnerability (Ozer et al., 2003).

Undetected and untreated PTSD is associated with a wide range of adverse outcomes, including sleep disturbances, substance abuse, delinquent behaviour, elevated suicide risk, and increased healthcare costs due to its long-term impact (Benedict et al., 2020; Davis et al., 2022; Gibson et al., 2020; Marsiglio et al., 2014; Pietrzak et al., 2011). Despite these serious consequences, there are often long delays between the onset of PTSD symptoms and the initiation of appropriate treatment (Goldstein et al., 2016; Pietrzak et al., 2012). To support timely recognition and improve care pathways for individuals with PTSD, multidisciplinary treatment guidelines for PTSD (Federatie Medisch Specialisten, 2025) in the Netherlands offers evidence-based recommendations for the assessment and treatment of PTSD in adults. The guidelines include references to individuals with intellectual disabilities but make no mention of individuals with BIF, and the recommendations for individuals with ID are predominantly based on research conducted in the general population. While the guidelines acknowledge the importance of considering intellectual disabilities when diagnosing and treating PTSD, they do not specify how to select or adapt appropriate diagnostic tools or treatment approaches for this group. Furthermore, the guidelines assume that a suspected PTSD diagnosis is present, despite PTSD often being particularly challenging to recognise in individuals with MID-BIF (Mevissen et al., 2020; Nieuwenhuis et al., 2019; see also the section: PTSD not recognised in individuals with MID-BIF). Consequently, the characteristics and needs of people with MID-BIF may not be fully addressed in these guidelines.

PTSD in individuals with MID-BIF

Increased risk

Individuals with MID-BIF seem to be at increased risk of developing PTSD compared to those in the general population (Mason-Roberts et al., 2018; Mevissen et al., 2020a). This heightened vulnerability is likely related to their more frequent exposure to potentially traumatic events compared to the general population (McDonnel et al., 2019; Nieuwenhuis et al., 2019) and might also be influenced by difficulties coping with and processing such events due to limited cognitive and adaptive capacities. Studies conducted in different care contexts have reported high PTSD rates among adults with (suspected) MID-BIF. For example, Mevissen et al. (2020a) examined 106 adults with MID-BIF who were receiving care from an ID care service and found a PTSD prevalence of 38%. Nieuwenhuis et al. (2019) conducted study among 570 individuals with severe mental illness receiving 24-hour care in a tertiary mental health care setting and reported a suspected PTSD rate of 48% among those with suspected MID-BIF.

PTSD not recognised in individuals with MID-BIF

Although PTSD appears to be common among individuals with MID-BIF, it often remains unnoticed in this group (Mevissen et al., 2020a; Nieuwenhuis et al., 2019). Not recognising PTSD is also reflected in the findings of Mevissen et al. (2020a) and Nieuwenhuis et al. (2019). For example, while 38% of participants in the study by Mevissen et al. (2020a) met the diagnostic criteria for PTSD based on a standardised validated diagnostic interview (i.e., the DITS-ID; see below), only 2% had a PTSD diagnosis recorded in their electronic client files. Similarly, Nieuwenhuis et al. (2019) found that 48% of individuals with suspected MID-BIF screened positive for PTSD, only 8% had a PTSD diagnosis recorded in their files prior to assessment.

There are several explanations for not recognising PTSD in individuals with MID-BIF. A first explanation is "*diagnostic overshadowing*", a phenomenon in which PTSD symptoms are misattributed to characteristics of ID or symptoms of another mental health disorder that is already diagnosed (Jopp & Keys, 2001; Wilsocki & Zalta, 2024). For example, intrusion symptoms (PTSD cluster B) can be misinterpreted as hallucinations belonging to a psychotic disorder, avoidance symptoms (PTSD cluster

C) can be perceived as a consequence of limited adaptive skills, negative alterations in cognition and mood (PTSD cluster D) can be incorrectly seen as symptoms of an anxiety disorder or a mood disorder, and alterations in arousal and reactivity (PTSD cluster E) may be mistaken for symptoms of attention-deficit/hyperactivity disorder (ADHD) or to reflect a mismatch between an individual's social and emotional functioning and the social context in which they live. As a result, PTSD symptoms may be inaccurately attributed to symptoms of other mental health condition or an ID.

A second explanation for the under-recognition of PTSD in individuals with MID-BIF is the overlap between behavioural problems and PTSD symptoms, as described in Criterion E, which includes "Irritable behaviour or angry outbursts (with little or no provocation), typically expressed as verbal or physical aggression towards people or objects" and "Reckless or self-destructive behaviour". However, research suggests that this relationship is more complex than symptom overlap alone. For example, Rittmannsberger et al. (2020) found in a cross-sectional study that trauma exposure was indirectly associated with behavioural problems through PTSD symptoms. Because such behavioural problems are often highly visible and disruptive in care settings, professionals may focus primarily on managing these behaviours, thereby overlooking the possibility that these are trauma-related (McNally et al., 2021). This mechanism differs from diagnostic overshadowing in the sense that it does not involve attributing PTSD symptoms to a specific diagnosis or ID but rather overlooking PTSD as an underlying cause of the behavioural problems. These findings show that trauma-related symptoms can be hidden by externalising behaviour, making it harder to recognise PTSD in individuals with MID-BIF.

Finally, professional caregivers have limited knowledge of and awareness of the trauma histories of individuals with MID-BIF. While a PTSD diagnosis requires an understanding of traumatic events and their relationship with current symptoms (APA, 2022), professional caregivers often lack insight into their clients' life histories. In many cases, traumatic events are not documented in client files, and caregivers may not enquire about them either. Professional caregivers are frequently unaware of the traumatic

events that individuals with ID have been exposed to, which significantly hinders the identification of PTSD in this group (Hoogstad et al., 2023).

These explanations illustrate the complexity of recognising PTSD in people with MID-BIF, emphasising the need for suitable screening and diagnostic tools to support accurate identification and assessment of PTSD.

Screening for PTSD in adults with MID-BIF

At the start of this research project, no screening instrument was available that had been developed for adults with MID-BIF and aligned with the DSM-5-TR criteria. The lack of a screener likely contributed to not recognising PTSD in this group. Available PTSD screeners fall roughly into three categories: those based on the DSM-5-TR but not validated for individuals with MID-BIF, such as the PTSD Checklist for DSM-5 (PCL-5; Blevins et al., 2015); those validated for individuals with MID-BIF but based on the DSM-IV criteria, such as the Impact of Event Scale – Intellectual Disabilities (IES-ID; Hall et al., 2014); and screeners that are both based on the DSM-IV and not validated for people with MID-BIF, such as the Trauma Screening Questionnaire (TSQ; Brewin et al., 2002), used in the study by Nieuwenhuis et al. (2019). It is essential that a PTSD screener for individuals with MID-BIF is both aligned with the current DSM-5-TR criteria and adapted and validated for adults with MID-BIF. The DSM-5-TR introduced substantial revisions in the conceptualisation and diagnostic criteria of PTSD, rendering earlier instruments based on the DSM-IV no longer fully appropriate. Moreover, individuals with MID-BIF have specific cognitive and communicative needs that require feasible screening tools. Adaptations, such as simplified language and visual support, are necessary to improve the comprehension and reliability of self-reporting (Douma et al., 2025). The development and validation of a DSM-5-TR based trauma screener tailored to the cognitive and communicative capacities of adults with MID-BIF is therefore important and is addressed in Chapter 3 of this dissertation. Without such a screener, clinical practice risks delays in the recognition and diagnosis of PTSD, ultimately impacting timely access to effective treatment.

Diagnostic assessment of PTSD in adults with MID-BIF

There is growing attention in the literature regarding the assessment of PTSD in individuals with MID-BIF (Hoogstad et al., 2025). Currently, the Diagnostic Interview Trauma and Stressors – Intellectual Disability for adults (DITS-ID-adults; Mevissen et al., 2018) is the only available instrument that enables PTSD diagnosis based on the DSM-5-TR criteria (APA, 2022) in this target group. This structured clinical interview showed good feasibility and psychometric properties in a Dutch sample of adults with MID-BIF (Mevissen et al., 2020a). The DITS-ID-adults demonstrated good inter-rater reliability. Since there was no gold standard for assessing PTSD in individuals with MID-BIF, Mevissen et al. (2020a) examined construct validity by analysing the associations between PTSD diagnostic status, PTSD symptoms, and symptoms of anxiety, depression, and subjective stress.

Although the DITS-ID-adults was found to be reliable and valid, this study had a few limitations that should be noted. First, anxiety and depression symptoms were measured using a proxy questionnaire, which may have led to misinterpretation of symptoms owing to their subjective nature. Second, behavioural problems were not assessed, whereas PTSD symptoms and behavioural problems are known to be associated (Mason-Roberts et al., 2018; McNally et al., 2021; Rittmannsberger et al., 2020). The DITS-ID-adults is an important instrument for assessing PTSD in adults with MID-BIF. Nevertheless, further research is necessary to strengthen the evidence supporting its reliability and validity which is addressed in this dissertation (Chapter 2).

PTSD treatment in adults with MID-BIF

Once PTSD is recognised and diagnosed in individuals with MID-BIF, it is essential that they receive effective treatment. International guidelines for the general population, such as those issued by the World Health Organization (WHO, 2018) and the National Institute for Health and Care Excellence (NICE, 2018), recommend Trauma-Focused Cognitive Behavioural Therapy (TF-CBT) and Eye Movement Desensitisation and Reprocessing (EMDR) therapy as first-line treatments for PTSD. This approach has been endorsed and expanded in the Dutch multidisciplinary guidelines for PTSD (Federatie Medisch Specialisten, 2025). The guidelines recommend that all

adults with PTSD be offered trauma-focused psychotherapy, with a choice from a broader range of evidence-based interventions, including imaginal exposure, prolonged exposure, cognitive therapy, cognitive processing therapy, imagery rescripting, Brief Eclectic Psychotherapy for PTSD (BEPP), Narrative Exposure Therapy (NET), and EMDR therapy. The guidelines explicitly emphasise that no individual should be excluded from treatment based on personal characteristics, such as (mild) ID, and that interventions should be adapted, where necessary, to ensure they are appropriate and feasible for the individual. However, the guidelines do not specify how such adaptations should be implemented.

EMDR therapy is currently the most extensively studied PTSD treatment among individuals with MID-BIF and research suggests that it is a safe, feasible, and potentially effective therapy for adults with MID-BIF (e.g., Byrne et al., 2020; Penninx et al., 2021; Verhagen et al., 2023). Given these promising findings and its increasing use in clinical practice, this dissertation focuses specifically on EMDR therapy.

EMDR therapy

EMDR therapy is an eight-phase, structured therapy aimed at resolving symptoms resulting from traumatic memories (De Jongh et al., 2024; Shapiro, 2018). The first phase consists of taking a case history and developing a case conceptualisation. Phase two involves preparing the participant for therapy. Phase three focuses on determining the target memory. Phases four, five, and six involve memory processing to achieve an adaptive resolution. An important part of the procedure involves performing tasks that demand working memory. For example, the therapist moves their fingers back and forth in front of the participant and asks them to follow the movements while focusing on the traumatic memory. The client is repeatedly asked to report on any emotional, cognitive, somatic, and/or imagistic experiences that arise until internal disturbances reach a subjective unit of disturbance (SUD) score of zero (0 = no disturbance at all, ten = the highest possible level of disturbance), and the client rates an adaptive and positive statement about themselves as fully believable on a Validity of Cognition (VOC) score of seven (7 = completely true, 1 = not true at all). Phase seven involves closing the session and preparing the

participant for the period between sessions. Phase eight consists of re-evaluation and integration.

The EMDR procedure is based on the adaptive information processing (AIP) model, which suggests that it creates a physiological condition in which unprocessed memories of traumatic events become linked to networks that include adaptive information and skills (Shapiro, 2007). Retrieving a traumatic memory is assumed to place a demand on the limited capacity of the working memory. If another task is performed while retrieving a traumatic memory, less capacity is available for recalling it. Consequently, the memory is perceived as less intense and emotional; this theory is known as the working memory theory (see De Jongh et al., 2024, for an overview of the theoretical background of EMDR therapy). Research within the general population shows that, in cases of persistently high subjective unit of distress (SUD) scores, this may be reduced by performing additional tasks that utilise working memory in addition to the original task. These include activities such as tapping, counting, or solving a simple arithmetic problem alongside the original task (Matthijssen et al., 2021).

There is an EMDR protocol for children and adolescents up to 18 years of age (De Roos et al., 2025). This protocol includes the same eight phases as the standard protocol developed by Shapiro (2018). It is adapted for individuals with lower language skills, which seems to be suitable and potentially effective for individuals with MID-BIF (Byrne et al., 2020; Mevissen et al., 2011; Penninx et al., 2021; Schippers-Eindhoven et al., 2024; Verhagen et al., 2023). Schipper-Eindhoven et al. (2024) conducted a systematic review of 13 studies to identify and categorise the difficulties therapists face when applying EMDR therapy to individuals with MID-BIF and the adaptations used to overcome these difficulties. They divided the adaptations made into three main categories: EMDR delivery (e.g., tuning to the developmental level of the client, simplifying language, decreasing pace), involvement of others (e.g., involving family or support staff during or in between sessions), and the therapeutic relationship (e.g., taking more time, adopting a supportive attitude).

Intensive trauma-focused treatment

Evidence suggests that intensive trauma-focused treatment can be an effective alternative to weekly trauma-focused treatment (Gahnfelt et al., 2025; Hoppen et al., 2023; Hurley, 2018). The multidisciplinary guidelines for PTSD (Federatie Medisch Specialisten, 2025) support this view and explicitly recommend considering intensive trauma-focused treatment. Intensive treatment can consist of various therapies, such as a combination of prolonged exposure (PE) and EMDR therapy (e.g., Voorendonk et al., 2023), or one type of therapy such as EMDR therapy alone (Hurley et al., 2018). A common element in intensive trauma-focused treatment is therapist rotation, meaning that different therapists deliver therapy sessions throughout the treatment process. Intensive trauma-focused treatments appear to offer a promising solution to the high dropout rates often seen in traditional weekly trauma-focused treatments. Studies indicate that between one-quarter and one-third of participants in weekly trauma-focused therapy discontinue treatment, with some reporting even higher dropout rates (e.g., Niles et al., 2018). These high dropout rates may be due to a worsening of symptoms, which can be difficult to distinguish from the temporary distress that is an inherent part of trauma-focused therapy (Bongaerts et al., 2022; Van Woudenberg et al., 2018). In contrast, intensive trauma- focused treatments have demonstrated considerably lower dropout rates than other treatments. For example, Van Woudenberg et al. (2018) reported a dropout rate of less than 3%, whereas Bongaerts et al. (2022) reported no dropouts.

Intensive trauma focused-treatment with rotating therapists has shown promising results in individuals with MID-BIF. A pilot study by Ooms-Evers et al. (2021) investigated the effects of EMDR therapy and prolonged exposure therapy in 33 children and adolescents with MID-BIF. The study demonstrated a significant reduction in PTSD symptoms and in most participants, the PTSD diagnostic criteria were no longer fulfilled after treatment. Mevissen et al. (2020b) evaluated intensive trauma-focused treatment consisting of intensive EMDR therapy for both children and their parents, combined with parental skills training and two weeks of follow-up parent support at home. The study involved six families, including nine parents (six with MID-BIF) and ten children (all with MID-BIF). Significant

decreases in PTSD symptoms and daily life impairment were observed in children and parents. Additionally, parents showed a significant reduction in general psychopathology and parenting stress after the intervention. Despite these encouraging findings in children, adolescents, and their families, the sample sizes and the number of studies on the effectiveness of intensive EMDR therapy in adults with MID-BIF and severe behavioural problems remain small, making it difficult to generalize the findings. This dissertation aims to address this gap by investigating whether similar positive outcomes can be achieved in this adult population (Chapter 4).

Clients' experiences with intensive trauma-focused treatment

While initial evidence suggests that intensive trauma-focused treatment may be effective for individuals with MID-BIF, little is known about how they experience such treatment. A few studies have explored the experiences of individuals in the general population, indicating that they perceive intensive trauma-focused treatment as safe (Butler & Ramsey-Wade, 2024) and, although demanding, worthwhile due to significant reductions in trauma symptoms (Thoresen et al., 2022). Therapist rotation is also positively evaluated in this population and is considered beneficial for treatment effectiveness (Van Minnen et al., 2018).

Although research in this area is still limited for individuals with MID-BIF. Further research is needed to understand how adults with MID-BIF experience the intensity of trauma-focused treatment and the use of rotating therapists, a topic addressed in Chapter 5 of this dissertation.

Aims and outline of this dissertation

The four main aims of this dissertation are as follows: first, to further examine the psychometric properties of the adult version of the DITS-ID; second, to develop and evaluate a PTSD screener for adults with MID-BIF; third, to investigate the effectiveness of brief intensive EMDR therapy for adults with MID-BIF and severe behavioural problems; and fourth, to explore the experiences of individuals with MID-BIF and severe behavioural problems who received this treatment. These aims serve a broader goal of improving the identification, diagnostic assessment, and treatment of PTSD in adults with MID-BIF.

In line with the aims of this thesis, the structure and content are outlined as follows: Chapter 2 reports a study assessing the reliability and construct validity of the DITS-ID-adults The DITS-ID-adults, Brief Symptom Inventory–18, Impact of Event Scale-Intellectual Disability, Anxiety, Depression, and Mood Scale, and Behavior Problems Inventory were administered to 97 participants with MID-BIF and their relatives. Chapter 3 focuses on the adaptation and evaluation of both the adult self-report and proxy versions of the Trauma Screener-Intellectual Disability (TS-ID) for adults with MID-BIF. The TS-ID was adapted from a child and adolescent screener and administered to participants and proxies to examine internal consistency, validity, and optimal cut-off scores for PTSD screening. Chapter 4 examines the safety and effectiveness of brief intensive EMDR therapy conducted by a team of rotating therapists in adults with MID-BIF, PTSD, and severe behavioural problems. Using a randomised non-concurrent multiple baseline between-subjects design, PTSD symptoms, diagnostic status, adverse events, behavioural problems, adaptive behaviour, and involuntary care use were assessed. Chapter 5 explores the experiences of individuals with MID-BIF, PTSD, and severe behavioural problems with brief intensive EMDR therapy delivered by a team of rotating therapists. In-depth semi-structured interviews were conducted with participants, professional caregivers, and EMDR therapists before and after therapy to understand their treatment experiences. Chapter 6 discusses the overall findings of the studies that are part of this dissertation.

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Chapter 2

Reliability and validity of the Diagnostic Interview Trauma and Stressors- Intellectual Disability in adults with mild intellectual disabilities or borderline intellectual functioning

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Abstract

Objective: To assess the reliability and construct validity of the Diagnostic Interview Trauma and Stressors- Intellectual Disability – Adult version (DITS-ID-adults) in adults with mild intellectual disabilities or borderline intellectual functioning (MID-BIF).

Method: The DITS-ID-adults, Brief Symptom Inventory–18 (BSI–18), and Impact of Event Scale-Intellectual Disability (IES – ID) were administered to 97 participants with MID-BIF who lived in supported housing. The Anxiety, Depression, and Mood Scale (ADESS) and Behavior Problems Inventory (BPI) were administered to their relatives.

Results: The interrater reliability of the DITS-ID-adults was good to excellent. The construct validity of the DITS-ID-adults was good, based on positive correlations between the BSI–18, IES-ID, ADESS and DITS-ID-adults, and mainly positive correlations between the BPI and DITS-ID-adults (r = .21 to r = .75). Reporting potentially traumatic events listed under the A criterium for PTSD was associated with fulfilling PTSD symptom criteria. In this sample, 58% were classified with post-traumatic stress disorder (PTSD) according to the DITS-ID-adults, while PTSD diagnosis on file was low (7%).

Conclusion: The present findings support the DITS-ID-adults as a reliable and valid basis for classifying PTSD in individuals with MID-BIF.

Introduction

According to the DSM-5-TR, PTSD is characterized by symptoms of intrusions, avoidance, negative alterations in cognition and mood, and alterations in arousal and reactivity following exposure to a potentially traumatic event. Such an event is defined under the A criterion when an individual has directly experienced, witnessed or learned that a friend or relative has been exposed to actual or threatened death, serious injury, or sexual violence. PTSD symptoms last for at least one month and cause distress in social or occupational functioning or functioning in other important areas (American Psychiatric Association [APA], 2022). Individuals with mild intellectual disability or borderline intellectual functioning (MID-BIF; IQ 50–85) may be at a relatively higher risk of developing post-traumatic stress disorder (PTSD) than people without an intellectual disability (ID; de Vogel & Didden, 2022; Mason-Roberts et al., 2018; Mevissen & de Jongh, 2010; Mevissen et al., 2016; Nieuwenhuis et al., 2019). While PTSD symptoms are associated with a range of impairments and mental health conditions, studies have found long delays from onset to treatment if diagnosis and treatment are sought (Goldstein et al., 2016; Pietrzak et al., 2012).

PTSD frequently remains unnoticed in individuals with MID-BIF (Nieuwenhuis et al., 2019), although PTSD symptoms manifest similarly in persons with MID-BIF as in people without ID (Hoogstad et al., 2023; Mevissen et al., 2016, 2020). In a cross-sectional study involving 570 severely mentally ill participants to explore the presence of MID-BIF based on a screener and PTSD, among the group with MID-BIF, there were much higher rates of suspected PTSD (48%) than the number of PTSD diagnoses (8%) already known in this sample before participating in the study (Nieuwenhuis et al., 2019). A possible explanation for the difficulty in recognizing PTSD in individuals with MID-BIF is that PTSD symptoms are attributed to the characteristics of MID-BIF or another mental disorder, a phenomenon called diagnostic overshadowing (Jopp & Keys, 2001). PTSD symptoms show overlap with symptoms of anxiety and depressive disorders (Kildahl & Helverschou, 2023; Kildahl et al., 2020a, 2020b), problems that occur at least as often among people with an intellectual disability as in the general population and for which recognition has been increasing (Emerson et

al., 2023). As a result, PTSD symptoms may be wrongly attributed to these disorders. The diagnosis of PTSD requires more than observing visible behavior. A PTSD diagnosis requires knowledge of what traumatic events a person may have experienced and could be linked to the emergence of symptoms (American Psychiatric Association [APA], 2022). Undetected and untreated PTSD in individuals in the general population has been found to be associated with an elevated risk of other conditions, such as substance abuse (Goldstein et al., 2016, revictimization (Graham-Kevan et al., 2015), delinquency (Marsiglio et al., 2014), and decreased physical health (Pietrzak et al., 2012). Therefore, a timely and adequate diagnosis of PTSD is important in patients with MID-BIF (McNally et al., 2021).

A growing body of research has highlighted the need to assess individuals with ID who have experienced psychological trauma. Although PTSD symptoms manifest in people with MID-BIF in the same way as in people without ID (Hoogstad et al., 2023; Mevissen et al., 2016, 2020), it requires different diagnostic tools because questionnaires developed to assess PTSD in people in the general population are often too difficult to complete for people with MID-BIF due to the lack of simplified language and supporting visualization (Kooijmans et al., 2022). A review by Daveney et al. (2019) revealed that the adult version of the Diagnostic Interview Trauma and Stressors – Intellectual Disability (DITS-ID-adults; Mevissen et al., 2018) is the only instrument to establish a PTSD diagnosis in adults with MID-BIF according to the DSM-5 criteria (American Psychiatric Association [APA], 2013). The DITS-ID-adults is a clinical interview (taking approximately 45–60 minutes) and has been validated in a sample of 106 Dutch adults with MID-BIF, living in supported housing or receiving ambulatory care from an ID care service (Mevissen et al., 2020). The DITS-ID-adults proved to be client-friendly, given that all participants in the study by Mevissen et al. (2020) could complete the interview, and emotional dysregulation did not occur. The interrater reliability of the DITS-ID-adults was good, and its construct validity was supported by significant positive associations between the scores on the Anxiety, Depression, and Mood Scale (ADESS) and Impact of Event Scale – Intellectual Disabilities (IES-ID). However, there are a few gaps in the study by Mevissen et al. (2020) that need to be noted. First, anxiety and depression symptoms were measured using

a proxy questionnaire, whereas feelings of anxiety and depression due to their private nature may be missed by others. Second, behavioral problems were not assessed, while PTSD symptoms and behavioral problems are interrelated (Kildahl & Helverschou, 2023; Kildahl et al., 2020; Mason-Roberts et al., 2018; McNally et al., 2021; Rittmannsberger et al., 2020).

The purpose of the present study was to assess the interrater reliability and construct validity of the DITS-ID-adults in adults with MID-BIF. This study replicated and extended the study by Mevissen et al. (2020) by examining the construct validity of the DITS-ID-adults. We used the self-reported Brief Symptom Inventory-18 (BSI-18) to measure symptoms of anxiety and depression, and the Behavior Problems Inventory (BPI) to measure behavioral problems. In addition, we used the IES-ID and ADESS, which were also used in Mevissen et al. (2020) study. We hypothesized that there would be positive associations between the number of symptoms on the DITS-ID-adult and the presence or absence of a PTSD classification on one hand, and questionnaire scores on the other (i.e., ADESS, BSI-18, BPI, and IES-ID). In addition, we examined the association between reporting an event that met Criterion A for PTSD and meeting the PTSD symptom criteria (both measured with the DITS-ID-adults). We hypothesized that reporting a Criterion A event would be associated with meeting PTSD symptom criteria and that individuals meeting PTSD symptom criteria would report more Criterion A events than those not meeting PTSD symptom criteria.

Materials and methods

Participants and Setting

Individuals with a mild intellectual disability or borderline intellectual functioning (MID-BIF) who were all living in supported housing off two ID care services in the Netherlands (i.e., 's Heeren Loo and Trajectum) were informed about the aims of the study by their psychologist. Participation was voluntary and individuals interested in participating received an information letter. The inclusion criteria were that the participants were at least 18 years old, had a diagnosis of MID or BIF, and had sufficient Dutch language skills. Suicidality, drug use, and serious sedating medications

(e.g., anxiolytics) were used as exclusion criteria. The study protocol and detailed procedures were approved by the Central Committee Involving Human Subjects of the Radboud University Medical Centre (reference number: 2020–6967 – NL75909.091.20). After the study procedures had been fully explained and after at least a week of consideration, 100 hundred participants gave their written informed consent to participate in the study, to record the interview on video, and to process the data anonymously. A legal representative also signed up for clients who were not fully mentally capable of providing consent to decide whether they wanted to participate in the study or not.

Of the 100 participants who initially participated in this study, 97 completed the interview with DITS-ID-adults. Only three participants (3%) terminated the interview early; one participant did not understand the questions in the event section, while two participants expressed that they felt sad at the event section and, therefore, did not want to continue. Eventually, the sample consisted of 97 adults (55 women and 42 men) with MID-BIF. Their mean age was 32 years (range:18-73; SD = 14.07). IQ scores were available for 92 participants; for 5 participants IQ score in their client file were lacking, but their file specified that they had MID. The mean IQ was 68 (range:50-85; SD = 9.39); 52 participants had MID (54%), and 45 participants had BIF (46%). Of the 97 participants, 37 (38%) had at least one additional DSM-5 diagnosis in their medical record. Twenty participants (21%) were diagnosed with autism spectrum disorder, four (4%) with mood disorder, two (2%) with anxiety disorder, three (3%) with personality disorder, eleven (11%) with attention deficit hyperactivity disorder (ADHD) and seven (7%) participants had been diagnosed with PTSD prior to the study.

One-third (34%) indicated that they had received trauma treatment before. To examine the association between reporting a PTSD criterion A event and fulfilling the PTSD symptom criteria, only data from participants who had not received trauma treatment (N = 64) were used. This is because trauma treatment interferes with the association between reporting a Criterion A event and PTSD symptoms, and one of the aims of trauma treatment is to reduce PTSD symptoms. Data from all participants (N = 97) were used to examine the construct validity and interrater reliability.

Instruments

Diagnostic Interview Trauma and Stressors – Intellectual Disability – Adult Version (DITS-ID-adults)

The DITS-ID-adults (Mevissen et al., 2018) is a Dutch clinical interview (approximately 60 minutes) by which PTSD can be classified in adults with MID-BIF based on the DSM-5 criteria for PTSD. The DITS-ID-adults protocol systematically examines criteria A, B, C, D, E, F, G, and H to establish whether an individual satisfies the complete set of criteria required for the classification of PTSD. The DITS-ID-adults uses simplified language and visual cues and consists of four sections. The first section consists of 31 questions about potentially traumatic and stressful events. If the participant answers "Yes" the interviewer asks the following question: "What happened?," after which s/he places the event on a timeline. Based on the participant's answer, it is determined whether or not it is an A-criterion event. An example of a question is, "Have you ever been bullied?" If someone answers that he/she has only been bullied with unpleasant words, it is not scored as an A-criterion event; if someone says that the bullying turned serious harm was inflicted, then the answer is scored as an A-criterion. The symptom section includes 39 PTSD symptom questions, of which 32 corresponding to the DSM-5-TR symptom list (PTSD criteria B, C, D, and E). These are questions to which the participant can answer "Yes" or "No." The interviewer uses the answer category "Other" if the participant answers with: "I don't know" or "I've always had that" or gives an unclear answer. In addition, four other potentially atypical symptoms (e.g., "Do you have to do some things again and again or always in the same order?") are asked. Subsequently, a thermometer card (a visual cue) was used to support the person to indicate the subjective level of daily life impairment. This scale ranges from 0 (totally not) to 8 (very much), with a score of 4 or higher meeting the G criterion. Finally, if the interference score is four or higher, the participant is asked when the symptoms started, from what age, or after which event. This will help confirm whether symptoms have been present for more than a month, which is necessary to classify PTSD (criterion F). Finally, the interviewer assesses whether the symptoms are not explained by medication, drug use, other medical conditions or somatic disorders (criterion H).

Brief Symptom Inventory –18, Revised Dutch Version (BSI–18)

The BSI–18 (de Beurs, 1993) is a multidimensional (Dutch) instrument that measures self-reported psychological distress and psychopathological symptoms in adults aged 18 and over; it measures the most common psychopathological symptoms. The questionnaire consists of 18 questions scored on a 5-point Likert scale of distress (0 = not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit, 4 = extremely). It takes approximately five minutes to complete the questionnaire. The BSI yields a total score (eighteen items) and consists of the following three primary symptom dimensions: “Somatization” (six items), “Anxiety” (six items) and “Depression” (six items). The BSI–18 has demonstrated sufficient to good psychometric properties, specifically internal consistency and discriminant validity, for (Dutch) individuals with MID-BIF (Wieland et al., 2012). In our study, Cronbach’s alpha for the BSI-18 total score was .95, for “Somatization” .88, for “Depression” .88 and for “Anxiety” .89, indicating good to excellent internal consistency.

Behavior Problems Inventory (BPI)

The BPI-01 (Rojahn et al., 2001) is an instrument used for the assessment of self-injury, stereotyped behavior, and aggression/destruction in individuals with ID. In our study, we used the Dutch version of the BPI. This, instrument which is completed by proxy indexes the frequency and severity of problem behaviors and consists of three subscales: “Self-injurious behavior” (eight items), “Aggressive/destructive behavior” (ten items), and “Stereotyped behavior” (twelve items). The frequency of the problem behavior is measured on a 5-point Likert scale (0 = never, 1 = monthly, 2 = weekly, 3 = daily, and 4 = hourly). The respondent’s subjective judgment of the severity of the problem is measured on a 3-point Likert scale (1 = mild problem, 2 = moderate problem, 3 = severe problem). A mean score for both frequency and severity was calculated for each subscale and for problem behavior overall. The Dutch version of the BPI has been found to show adequate to good psychometric properties, including interrater, intrarater, internal consistency and good convergent validity, compared with the Aberrant Behavior Checklist (Dumont et al., 2014). In our study, Cronbach’s alpha for the BPI total score was .86 (frequency) and .88 (severity), for “Self-injury behavior” .75 (frequency) and .77 (severity), for “Aggressive/destructive behavior” .81 (frequency) and .89 (severity) and

for "Stereotyped behavior" .88 (frequency) and .90 (severity), indicating acceptable to excellent internal consistency.

Impact of Event Scale-Intellectual Disability, (IES – ID)

The IES – ID (Hall et al., 2014) is a self-report screening questionnaire indexing subjective stress caused by potentially traumatic events. In our study, we used the Dutch translation of the IES – ID. The IES – ID corresponds to the three DSM-IV-TR PTSD symptom categories: avoidance, intrusion, and hyperarousal. The instrument consists of 22 questions scored on a 3-point Likert scale (1 = a little bit, 2 = in the middle, 3 = a lot). No research has been done on the psychometric characteristics of the Dutch version of the IES-ID. The English version of the IES-ID has been found to have good to excellent psychometric properties, including high internal consistency and test-retest reliability, among individuals with MID-BIF (Hall et al., 2014). In the present study, Cronbach's alpha for the IES-ID total score was .94, which indicates excellent internal consistency.

Anxiety, Depression, and Mood Scale (ADESS)

The ADESS (in Dutch: Angst Depressie en Stemmingsschaal; Anxiety, Depression and Mood Scale [ADAMS]; Hermans et al., 2008) is a Dutch questionnaire for measuring symptoms of anxiety and depression in people with ID according to the DSM-5. This was accomplished by proxy informants. The ADESS consists of four subscales: "Depressive mood" (thirteen items), "Fear and tension" (seven items), "Social avoidance" (seven items) and "Other problems" (eleven items). Each item of the ADESS is scored on a 4-point Likert scale (0 = never/no problem, 1 = occasional/minor problem, 2 = regular-moderate problem, 3 = frequent/severe problem). The ADESS has sufficient to good psychometric properties (i.e., internal consistency, test-retest reliability, and interrater reliability). The ADESS showed sufficiently reliability as a screen for anxiety and depression against the PAS-ADD Interview with (Dutch) adults with ID (sensitivity between 73% and 88% and specificity range from 71% to 80%; Hamers et al., 2018; Hermans et al., 2012). In the present study, Cronbach's alpha for the ADESS total score was .91, for "Depressive mood" .87, for "Anxiety and stress" .74, for "Social avoidance" .84 and for "Other problems" .73, indicating acceptable to excellent internal consistency.

Procedure

The data were collected between November 2021 and June 2022. Trained master students of Radboud University and Vrije Universiteit Amsterdam and the first author conducted the DITS-ID-adults, then the BSI and finally the IES-ID were administered to clients. Interviews were conducted in a quiet room at the facility. All DITS-ID-adults' interviews were recorded on video to assess interrater reliability. Three participants did not complete the DITS-ID-adults (see Participants and Setting). In addition, the BPI and ADESS were sent by postal mail or e-mail to a person who knew the participant well. Both, the BPI and ADESS were completed by the same person for each participant: a professional caregiver for 83 participants and by a parent or husband for 11 participants.

We randomly selected 35 recorded interviews to assess the interrater reliability of the DITS-ID-adults. On a question-by-question basis, a second independent rater scored all items of the event and symptom sections of the DITS-ID-adults. The second rater assessed whether the event met criterion A and whether the participant met the criteria for PTSD.

Statistical Analyses

SPSS version 27 was used to analyze the data. First, a descriptive analysis was performed. To assess the interrater reliability of the DITS-ID-adults, Cohen's kappa was calculated for all items of the event section, symptom section, whether the reported event met criterion A, and the presence or absence of PTSD. To examine construct validity, correlation coefficients were calculated between the BSI-18, BPI, IES-ID, ADESS and total number of PTSD symptoms (DITS-ID-adults). Point-biserial correlations were calculated between the BSI-18, BPI, IES-ID, ADESS and PTSD classification. The association reporting a PTSD criterion A event and fulfilling the PTSD symptom criteria was tested with chi-square and an independent samples t-test to examine the difference between the mean number of reported type A criterion events in participants who did and those who did not fulfill the PTSD criteria. If more than 10% of the items of a total score or subscale on the DITS-ID-adults, BSI-18, BPI, IES-ID or ADESS were not scored, the scores of that scale were not included in the analyses (see results for the number of participants per total scale and subscale). The

correlation coefficients were interpreted using the criteria of Funder and Ozer (2019).

Results

Descriptive Statistics

Of the 97 participants, 85 (88%) reported at least one A-criterion event in their life and 56 of them (58%) were classified with PTSD using the DITS-ID-adults. Table 1 lists the five event questions for which Criterion A was identified most often. Cronbach's alpha for the DITS-ID-adults total score (sum of yes scores) on the symptom section was .86, which indicates good internal consistency.

Table 1. Five most often cited potentially traumatic events.

	Number of times mentioned
Did someone ever touch your body even though you didn't want this?	44 (45%)
Did someone ever hit you repeatedly or hurt you severely?	33 (34%)
Have you ever seen someone being threatened or maltreated (beating, kicking, shooting, stabbing, going at someone's throat)?	32 (33%)
Did you ever experience a serious accident or a fire?	21 (22%)
Have you ever been forced to touch someone's body parts when you really didn't want to	20 (21%)

Interrater Reliability

The interrater reliability for almost all items that tapped into whether participants had been exposed to a particular event (29 items; yes, no, other) was excellent (κ = .76–1.00). For one item of the event section (i.e., item 12: "Did you ever see someone else being forced to have sex?") the interrater reliability was medium (κ = 0.48). The fact that kappa was lower for this item was likely due to the skewed distribution because the percentage of agreement on this item was high (94%). Kappa coefficients for fulfillment of the A-criterion were excellent (κ = 0.77–1.00). The interrater reliability of 43 symptom-items was good to excellent (κ = 0.64–1.00). Finally, the interrater reliability of the PTSD classification (yes/no) was excellent (κ = 1.00).

Construct Validity

Association Between PTSD Symptom Scores and BSI–18 Scores

Correlations between DITS-ID-adults' total number of PTSD symptoms and PTSD classification ("yes" or "no") and BSI–18 scores total score and subscales (BSI–18 was completed by the participant), were strong to very strong (see Table 2).

Table 2. Correlations between DITS-ID-adults total number of PTSD symptoms and PTSD classification ('yes' or 'no') and BSI-18 scores (total score and subscales).

BSI–18	Number of PTSD symptoms			('yes' or 'no') PTSD classification		
	n	*r*	*p*	*n*	*rpb*	*p*
Total score	97	.75	<.001	97	.61	<.001
Somatization	97	.64	<.001	97	.46	<.001
Anxiety	97	.70	<.001	97	.62	<.001
Depression	97	.73	<.001	97	.58	<.001

Note. Pearson correlation coefficients (r) and point-biserial correlation coefficients (rpb) are used for analyses.

Association Between PTSD Symptom Scores and BPI Scores

No significant correlations were found between the DITS-ID-adults' total number of PTSD symptoms and BPI frequency scores (BPI was completed by proxy informants). However, moderate correlations were found between the number of PTSD symptoms and the BPI total severity score ($n = 91$, $r = .28$, $p < .007$), BPI self-injurious behavior severity score ($n = 94$, $r = .23$, $p < .024$) and BPI stereotyped behavior severity score ($n = 93$, $r = .23$, $p < .028$). No correlations between the PTSD classification ("yes" or "no") and the BPI total score or for the subscales of the BPI were statistically significant (see Table 3).

Association Between PTSD Symptom Scores and IES-ID Scores

A very strong correlation was found between the total score on the IES-ID completed by the participant and the total number of PTSD symptoms on the DITS-ID-adults ($n = 96$, $r = .81$, $p < .001$) and the total score on the IES-ID and the PTSD classification based in the DITS-ID-adults ("yes" or "no") ($n = 96$, $r = .65$, $p < .001$).

Table 3. Correlations between DITS-ID-adults total number of PTSD symptoms and PTSD classification ('yes' or 'no') and BPI scores (total score and subscales).

BPI		Number of PTSD symptoms			('yes' or 'no') PTSD classification		
		n	*r*	*p*	*n*	*rpb*	*p*
Total score	Frequency	92	.21	.050	92	.12	.244
	Severity	91	.28	.007	91	.18	.098
Self-injurious behavior	Frequency	93	.19	.066	93	.11	.277
	Severity	94	.23	.024	94	.14	.178
Aggressive/destructive behavior	Frequency	92	.09	.415	92	.06	.601
	Severity	92	.14	.194	92	.07	.540
Stereotyped behavior	Frequency	95	.17	.106	95	.10	.326
	Severity	93	.23	.028	93	.16	.122

Note. Pearson correlation coefficients (r) and point-biserial correlation coefficients (rpb) are used for analyses.

Association Between PTSD Symptom Scores and ADESS Scores

Moderate to strong correlations were found between the DITS-ID-adults (completed by the participant), total number of PTSD symptoms, and PTSD classification ("yes" or "no") and ADESS scores (completed by proxy informants) in terms of overall score and subscales (see Table 4).

Association Between Reporting a PTSD Criterion A Event and PTSD Symptom Criteria

Results of a chi-square test (in the group of participants who had not received trauma treatment) showed that participants who reported a criterion A event significantly more often fulfilled all PTSD symptom criteria (criteria B, C, D, E, F, G, and H) compared to participants who did not reported a criterion A event (x^2 (1) = 5.52, *p* = .022). The results of an independent samples *t*-test showed that participants who met all PTSD symptom criteria reported more potentially traumatic events (*M* = 4.26; *SD* = 3.19) than those who did not meet all PTSD symptom criteria (*M* = 1.76; SD = 1.68), *t*(62) = 3.80, *p* < .001.

Table 4. Correlations between DITS-ID-adults total number of PTSD symptoms and PTSD classification ('yes' or 'no') and ADESS scores (total score and subscales).

ADESS	Number of PTSD symptoms			('yes' or 'no') PTSD classification		
	n	*r*	*p*	*n*	*rpb*	*p*
Total score	95	.46	<.001	95	.40	<.001
Depressive mood	95	.45	<.001	95	.37	<.001
Anxiety and stress	95	.48	<.001	95	.42	<.001
Social avoidance	95	.28	.006	95	.26	.012
Other problems	96	.38	<.001	96	.40	<.001

Note. Pearson correlation coefficients (r) and point-biserial correlation coefficients (rpb) are used for analyses.

Discussion

The interrater reliability of the DITS-ID-adults was good to excellent. Results support the construct validity of the DITS-ID in light of the relationships found with the other measures used in this study. We found a significant association between having been exposed to an event that meets the A criterium for PTSD and fulfilling PTSD symptom criteria.

To this end, our results replicate and extend the findings of Mevissen et al. (2020) who also found positive correlations between the total number of PTSD symptoms and PTSD classification (based on the DITS-ID-adults) and IES-ID and ADESS. Filling a gap left by the study by Mevissen et al. (2020), the correlation between BSI-18, BPI, and DITS-ID-adults was examined. Positive correlations were found between the total number of PTSD symptoms and the PTSD classification and the BSI-18, which measures self-reported somatization, anxiety, and depression. This was expected because of the positive association between PTSD symptoms and anxiety and depression symptoms (Mason-Roberts et al., 2018; Spinhoven et al., 2014). Moderate positive correlations were found between the total number of PTSD symptoms and most of the (severity) BPI subscales, which may also be expected because of the association between PTSD symptoms and behavioral problems (Goldstein et al., 2016; Kildahl et al., 2020; Mason-Roberts et al., 2018; McNally et al., 2021; Rittmannsberger et al., 2020). No correlations were found between the BPI subscale, "Aggressive/

destructive behavior" and the total number of PTSD symptoms and the PTSD classification. There may also be explanations other than PTSD for the presence of aggression problems. An illustrative example of another influencing factor is frustration with basic psychological needs (autonomy, relatedness, competence). Research indicates that individuals with MID-BIF more frequently experience frustration with these basic psychological needs, and this frustration is linked to the expression of externalizing behavioral problems (Westera et al., 2023). Overall, it can be concluded that the DITS-ID-adults is a useful instrument to classifyPTSD in people with MID-BIF, assessing a sample of participants who were exclusively living in residential care. Overall, it can be concluded that the DITS-ID-adults is a reliable and valid instrument to assess PTSD in people with MID-BIF.

Reporting a potentially traumatic event (A-criterion) was associated with fulfilling the PTSD-symptom criteria. Furthermore, people who met the PTSD symptom criteria reported more potentially traumatic events (criterion A) compared to those who did not meet the PTSD symptom criteria. This is in line with the study by Mevissen et al. (2020) and underpins the cumulative effect of trauma (Kessler et al., 2017); experiencing a potentially traumatic event increases the likelihood of reporting more potentially traumatic events.

PTSD is unrecognized

Of the 97 participants, 88% had reported at least one A-criterion event in their life, and 58% of the participants could be classified with PTSD according to the DITS-ID-adults. This is remarkably high, as only 7% of the participants were diagnosed with PTSD before participating in the study. Mevissen et al. (2020) and Nieuwenhuis et al. (2019) also found higher rates of PTSD diagnosis in their sample of participants than the rates known in advance. These data support the notion that PTSD is unrecognized in people with MID-BIF. Possibly because of the lack of evidence for appropriate diagnostic tools and missing guidelines in the field of PTSD in people with MID-BIF, diagnostic testing is rarely performed. Another possible explanation for not recognizing PTSD in individuals with MID-BIF is that PTSD symptoms are attributed to MID-BIF, a phenomenon known as diagnostic overshadowing (Jopp & Keys, 2001). In addition, PTSD

symptoms may be incorrectly attributed to other mental disorders (Kildahl & Helverschou, 2023). For example, intrusion symptoms (PTSD criterion B) can incorrectly be interpreted as hallucinations belonging to a psychotic disorder, and alterations in arousal and reactivity (PTSD criterion E) may appear to be manifestations of ADHD. Finally, the difficulty to recognize PTSD in this target group could be explained by the fact that caregivers are often insufficiently aware of the trauma history (Hoogstad et al., 2023) and PTSD symptoms (Versluis et al., 2025) of the individuals they work with.

As stated in the Introduction, undetected and untreated PTSD is related to serious problems in daily life, which may specifically hold true for individuals with MID-BIF (McNally et al., 2021). It is important that PTSD is better recognized in people with MID-BIF so that they can receive proper treatment. In recent years, an increasing number of studies have shown that trauma treatments, such as EMDR therapy, are suitable, safe, and potentially effective for adults with MID-BIF who have been diagnosed with PTSD (e.g., Penninx Quevedo et al., 2021; Unwin et al., 2018).

Limitations of the Study

The present study has limitations. First, since the introduction of DSM, MID and BIF should no longer be diagnosed by an IQ-score alone. When determining a MID or BIF, adaptive functioning should be considered in addition to the IQ score. All participants in this study were previously classified with MID or BIF as mentioned in their client file, but often the classification was based only on an IQ score and not on their adaptive skills. The latter is due to the lack of an up-to-date Dutch language and standardized instruments for measuring adaptive skills in people with MID-BIF. Consequently, it remains uncertain whether all participants would fulfill all DSM-5-TR criteria for MID or BIF. Second, we investigated a specific sample of adults with MID-BIF all living in supported housing in two ID care services, which implies these findings may not be generalizable to the MID-BIF population in general.

Recommendation for future Research

The DITS-ID-adults contains a follow-up measurement, with which a clinician can assess whether there is still a PTSD classification and/or

whether the number of PTSD symptoms has decreased following trauma treatment. However, given that, until now, no data are available on the test-retest reliability of the DITS-ID-adults follow-up measurement, future studies should address this issue. Availability of these data is important as this would enable clinicians to assess whether the difference in scores on the follow-up measurement before and after an intervention reflects a reliable change.

Conclusion

This study underscores the importance of recognizing and classifying PTSD in individuals with MID-BIF, as it is often overlooked. Our findings support the DITS-ID-adults as a reliable and valid basis for classifying PTSD for this population. It is imperative for healthcare and psychology professionals to become aware of the potentially high risk of PTSD in individuals with MID-BIF and consider the use of DITS-ID-adults as a valuable tool for classifying PTSD in individuals with MID-BIF.

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Chapter 3

Development and evaluation of the Trauma Screener - Intellectual Disability (TS-ID): A PTSD screening tool for adults with mild intellectual disability or borderline intellectual functioning

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Abstract

Background: This study aimed to evaluate the validity and reliability of the adult self-report and proxy version of the Trauma Screener-Intellectual Disability (TS-ID) in adults with mild intellectual disability or borderline intellectual functioning (MID-BIF). An optimal cut-off value was determined for the ratio of specificity to sensitivity for predicting the diagnosis of post-traumatic stress disorder (PTSD).

Methods: The TS-ID was adapted from a Dutch Child and Adolescent Trauma Screener, for use with adults with MID-BIF. Outcomes based on the TS-ID were compared with the presence of PTSD, as classified using the Diagnostic Interview Trauma and Stressors–Intellectual Disability (Mevissen et al., 2018). The TS-ID adult version was administered to 97 participants with MID-BIF who lived in supported housing, whereas the TS-ID proxy version was administered to 92 family members or professional caregivers.

Results: The TS-ID adult version showed high internal consistency (Cronbach's α = .94) and excellent validity (AUC = .94) for distinguishing PTSD in adults with MID-BIF. Optimal specificity and sensitivity was found at a cut-off score of 18. Although the TS-ID proxy version demonstrated excellent internal consistency (Cronbach's *α* = .93), it showed no validity in statistically distinguishing PTSD in adults with MID-BIF.

Conclusions: The TS-ID showed favourable psychometric qualities as a screening instrument of PTSD in the case for people with MID-BIF.

Introduction

Post-traumatic stress disorder prevalence in individuals with mild intellectual disability or borderline intellectual functioning

People with mild intellectual disability or borderline intellectual functioning (MID-BIF) (IQ 50–85) experience many negative life events (McDonnell et al., 2019) and may develop post-traumatic stress disorder (PTSD) more often than the general population (de Vogel & Didden, 2022; Mason-Roberts et al., 2018; Mevissen et al., 2016; Nieuwenhuis et al., 2019). The DSM-5-TR criteria for PTSD include exposure to actual or imminent death, serious injury and/or sexual violence, followed by symptoms of intrusions, avoidance, negative alterations in cognitions and mood and alterations in arousal and reactivity. PTSD symptoms last for at least 1 month and cause distress in social or occupational functioning or functioning in other important areas (American Psychiatric Association, 2022). PTSD has been found to be associated with several other mental health problems (Goldstein et al., 2016; Pietrzak et al., 2012), which may be especially the case in individuals with MID-BIF (McNally et al., 2021). In recent years, a growing body of research has indicated that trauma treatment such as eye movement desensitisation and reprocessing EMDR therapy is suitable, safe and potentially effective for adults with MID-BIF diagnosed with PTSD and/or comorbid behavioural and mental health problems (Penninx et al., 2021; Verhagen et al., 2023).

Post-traumatic stress disorder unnoticed

Although PTSD is common among individuals with MID-BIF, it often remains unnoticed in this target group (Kildahl et al., 2020a; Kildahl et al., 2020b; Mevissen et al., 2020; Nieuwenhuis et al., 2019). For instance, in Mevissen et al. (2020) study, among 106 adults with MID-BIF, the prevalence of PTSD-diagnoses reported in the patients' file was much lower (2%) than the rate (38%) of PTSD that was found based on a standardised clinical interview for PTSD. These and other studies suggest that PTSD is frequently underdiagnosed in individuals with MID-BIF. It is likely that if PTSD is not recognised, potentially effective trauma treatment will not be provided.

Screening may help to identify PTSD in individuals with MID-BIF at an early stage. Several trauma screeners based on the DSM-5-TR have been developed and validated for individuals without MID-BIF. However, these screeners have not been adapted or validated for people with MID-BIF. When employing such questionnaires for individuals with MID-BIF, it is important to make adjustments, including simplified language and supporting visualization, to improve accessibility and comprehension (Kooijmans et al., 2022). Until recently, a screening instrument for PTSD was not available for individuals with MID-BIF.

The present study

For the purpose of developing a PTSD screener adapted to people with MID-BIF, we adapted the Kinder en Jeugd Trauma Screener (KJTS; Kooij et al., 2025) after permission from the KJTS research group. The language level of the KJTS appears to be at the level that is also used in clinical work with adults with MID-BIF. However further adaptations were necessary to align the screener with the perspectives of individuals with MID-BIF (e.g. some of the KJTS refers to school and not to work; see Methods section). For example, the item content of the KJTS refers to parents and relatives but not to professional caregivers. The KJTS consists of three parts. The first part of the KJTS is based on the Clinical Administered PTSD Scale for Children and Adolescents (CAPS-CA; Nader et al., 1996). Both the second and third parts of the KJTS were developed using the Child and Adolescent Trauma Screen (CATS-2; Sachser et al., 2022). There are two versions of the KJTS: the self-report and caregiver report versions. Recent research shows that the KJTS self-report version is valid and reliable in screening for PTSD in children and adolescents (7–22 years old) in the general population (Kooij et al., 2025). We adapted the KJTS self-report version into the Trauma Screener-Intellectual Disability Adult version (TS-ID adult version). The KJTS caregiver report version was adapted into the Trauma Screener-Intellectual Disability Proxy version (TS-ID proxy version).

The purpose of the present study was to evaluate TS-ID by examining the validity and reliability of both versions of the screener for use in adults with MID-BIF. We also investigated which cut-off value of the TS-ID adult version

fits the optimal ratio of specificity to sensitivity in predicting diagnosis according to a structured PTSD interview.

Methods

Participants and Setting

Adults with MID-BIF who were living in supported housing of two ID care services in the Netherlands ('s Heeren Loo and Trajectum) were informed about the study by their treatment staff. The inclusion criteria were that participants were diagnosed with MID or BIF, were at least 18 years old and had sufficient Dutch language ability. The exclusion criteria were suicidality, alcohol/drug use and use of serious sedating medications (e.g. anxiolytics). Participation in this study was voluntary. All clients interested in participating received an information letter. The study protocol received approval from the Medical Research Ethics Committee, East Netherlands (reference number: 2020-6967-NL75909.091.20). One hundred participants provided written informed consent to participate in this study. For participants who lacked the capacity to provide formal consent a legal representative was asked to provide the consent.

Data were collected from 97 participants (three participants did not complete the Diagnostic Interview Trauma and Stressors-Intellectual disability [DITS-ID]). For five of the 97 participants, only the TS-ID adult version was completed. For the remaining 92 participants, both the TS-ID adult version and the TS-ID proxy version were completed. There were 55 women (57%) and 42 men (43%) between 18 and 73 years of age (*M* = 32; *SD* = 14.1). IQ scores were available for 92 participants. The mean IQ was 68 (range: 50–85; *SD* = 9.4). For five participants, no IQ scores were found in their client files, but their files specified that they were diagnosed with MID. Among 37 participants (38%), we found the presence of at least one DSM-5 classification (American Psychiatric Association [APA], 2013) in their client file: 20 participants (21%) had autism spectrum disorder, 11 (11%) attention deficit hyperactivity disorder (ADHD), seven (7%) PTSD, three (3%) personality disorder, four (4%) mood disorder, and two (2%) anxiety disorder. The 92 individuals who completed the TS-ID proxy version

consisted of 73 professional caregivers, 11 fathers, five mothers, two sisters and one brother.

Instruments

Child and Adolescent Trauma Screen

The Kinder en Jeugd Trauma Screener (KJTS; Kooij et al., 2025) is a trauma screener for children and adolescents (7–22 years old). There are self-report and caregiver report versions, each consisting of three sections. The first section was a Dutch translation of the event section of the Clinical Administered PTSD Scale Children and Adolescents (CAPS-CA; Nader et al., 1996) and consists of a checklist of traumatic and stressful events (19 events in the child version and 20 events in the parent version), in which participants can indicate whether they ever had experienced the event by marking 'Yes' or 'No'. The second section is a Dutch translation of the symptom section of the Child and Adolescent Trauma Screen (CATS-2; Sachser et al., 2022) and consists of a list of 20 questions that correspond to the DSM-5-TR symptom criteria for PTSD. Each item can be scored on a 4-point Likert scale (0 = *never*, 1 = *sometimes*, 2 = *often*, 3 = *almost always*). The third section is a Dutch translation of the impact and functioning section of the Child and Adolescent Trauma Screen (CATS-2; Sachser et al., 2022) and contains five questions about the impact of symptoms on daily functioning, with response options: 'Yes' or 'No'. The KJTS self-report and KJTS caregiver report both have high internal consistency. Kooij et al. (2025) found poor agreement between the self-report of the children and adolescents and their caregivers. Area under the curve (AUC) of the KJTS self-report was excellent compared to PTSD diagnosis using the CAPS-CA (Kooij et al., 2025).

Development of the adult version of the Trauma Screener-Intellectual Disability

The adult version of the Trauma Screener-Intellectual Disability (TS-ID adult version) was adapted from the self-report version of the KJTS. Adjustments were made based on input from the two focus groups and the clinical expertise of the first and third authors on trauma and PTSD in adults with MID-BIF. One focus group consisted of three adults with MID-BIF, and the other consisted of four psychologists with extensive experience in the care

and treatment of adults with MID-BIF. In both focus groups, the TS-ID adult version was presented to the participants, after which they were asked what their overall impression was and what they thought of its coverage. As a result, the instruction in part one of the TS-ID adult version was clarified, and in this section, the wording of three original events were modified, such as 'placed out of home' was changed into 'placed out of home or placed in crisis care', and the wording of five events was simplified. For example, 'dying of someone important to you' was reworded into 'death of someone important to you'. The instructions for scoring the questions in part two have also been clarified. The two questions in section three were modified to better fit the participants. For example, 'daycare' was added to 'school or work'. Next, the TS-ID adult version was piloted with five adults with MID-BIF in which the 'think aloud' method (Lundgrén-Laine & Salanterä, 2010) was used to assess how they interpreted each question of the TS-ID. This was done by asking participants to speak out when answering the questions. The researcher observed carefully to determine whether the thought that was spoken aloud corresponded to the content of the question and the answer given. No further adjustments were made after pilot testing the adult TS-ID version.

Development of the proxy version of the Trauma Screener-Intellectual disability

The TS-ID proxy version is adapted from the KJTS caregiver report version. We adapted the KJTS caregiver report version based on the input from two focus groups and the clinical expertise of the first and third authors on trauma and PTSD in adults with MID-BIF. Focus group one consisted of two parents of adults with MID-BIF and focus group two consisted of two professional caregivers who supported people with MID-BIF. Several adaptations were made. In the adapted version the word 'child' has been replaced. For example, 'How often did your child suffer from the following feelings …' has been changed to 'How often did the person you are completing this list for suffer from the following feelings …'. The instructions in part one of the TS-ID adult versions have been clarified. In this section, three new events are added to the list of events and the three original events are expanded. For example, 'Experienced parents, or other family members hitting each other, kicking, throwing objects, or destroying things', which now also includes

'people from the living group'. Three phrases were simplified, such as 'Left alone for a long time or with other children without an adult around', which has been changed to 'Left alone for a long time without an adult around'. The instructions for scoring the questions in part two were also clarified. Regarding section three, the same adjustments were made as in the TS-ID adult version (see above). The TS-ID proxy version was piloted with two professional caregivers and four parents of adults with MID-BIF, in which also the 'think aloud' method was applied. No further changes were made to the TS-ID proxy version after pilot testing.

Trauma Screener-Intellectual Disability

There are two versions of the TS-ID, a self-report version (TS-ID-adult version) and a proxy version. The two versions of the TS-ID are identical in content but differ in phrasing. The adult version is completed by the client, while the proxy version is completed by a person who has regular contact with the person with MID-BIF. Both the TS-ID adult version and TS-ID proxy version contains three sections, with response options identical to those of the KJTS. The first section of the TS-ID adult version and the TS-ID proxy version consists of 22 and 23 events, respectively, in which a wide variety of events are questioned: not only events that meet the A criterion but also other negative life events. The proxy version of the TS-ID includes the following additional event: 'You have heard that the person for whom you are completing this list, has been touched unwanted, but he/she denies it'. Section two of both versions of the TS-ID consists of 20 PTSD symptoms corresponding to the DSM-5-TR symptom criteria (cluster B: items 1–5, cluster C: items 6–7, cluster D: items 8–14 and cluster E: items 15–20). The total symptom frequency score (range: 0–60) can be obtained by summing the scores of the 20 questions, in which questions 9, 10 and 15 are divided into several sub-questions. For the latter questions, only the highest score is recorded in the final score. The third section of both versions of the TS-ID contains five questions about the impact of symptoms on daily functioning with response options: 'Yes' or 'No'.

Diagnostic Interview Trauma and Stressors-Intellectual Disability

The DITS-ID (Mevissen et al., 2018) is a clinical interview in which a PTSD diagnosis can be established in adults with MID-BIF, based on the DSM-5

criteria. The protocol systematically evaluates DSM-criteria A, B, C, D, E, F, G and H to determine whether an individual meets the criteria necessary for PTSD diagnosis. The DITS-ID was developed for people with MID-BIF. To facilitate accessibility, DITS-ID employs simplified language and visual cues. DITS-ID consists of five sections. The first section consists of 31 questions on whether the participant had ever been exposed to a certain event. If the answer is 'Yes', the interviewer asks 'What happened?' and maps an event on a timeline. According to the answer, the interviewer determines whether the event meets the A criterion of PTSD. The following section includes 39 questions on PTSD symptoms, 32 of which correspond to the DSM-5 symptom list (PTSD criteria B, C, D and E). In addition, four potentially atypical symptoms (e.g. 'Have you changed in terms of food since the events?'. For example, that you eat too much or too little?) are asked. Participants are requested to answer with 'Yes' or 'No', while the 'Other' category allows for answers such as 'I don't know' or 'I've always had that'. Then a thermometer chart, which serves as a visual analogue, helps participants to indicate the subjective degree of impairment in daily life on a scale from 0 (*totally not*) to 8 (*very much*); a score of 4 or higher indicates that the G criterion is met. If the G criterion is met, the participant is asked to provide details about when the symptoms started, at what age and after what event. This helps confirm whether the symptoms persist for more than a month, which is a prerequisite for diagnosing PTSD (criterion F). Finally, the interviewer assesses whether the symptoms can be attributed to medication, drug use, other medical conditions or mental disorders (criterion H). The DITS-ID has demonstrated good psychometric properties in adults with MID-BIF. Internal consistency was high, interrater reliability of the DITS-ID was good to excellent, and the construct and convergent validity of the DITS-ID was good (Mevissen et al., 2020; Versluis et al., 2024). In the present study, Cronbach's alpha for the DITS-ID total score on the symptom section (sum of 'Yes' scores) was .86, which indicates good internal consistency.

Procedure

The data were collected between November 2021 and June 2022. Trained master students of Radboud University and Vrije University Amsterdam, and the first author administered the TS-ID adult and the DITS-ID to

97 participants. For all three sections of the TS-ID adult version (i.e. checklist on traumatic and stressful events, PTSD symptoms and impact of the symptoms on daily life), participants first read the instructions independently and were then asked, 'Can you tell me what to do now?'. If a participant could not read, all questions of the screener were read out loudly. If the participant understood what he or she had to do, they proceeded independently to complete the questions in the section. If the participant did not understand what they should do, the instruction was explained by the students or researcher after which they were asked again, 'Can you tell me what to do now?'. If the participant still did not understand what to do, the student or first author read the first three questions of the section to the participant, after which the participant responded. If, after the first three questions, the participant was still unable to continue answering the questions independently, all questions in the section were read aloud by the student or first author. Completing the TS-ID adult version took approximately 10 minutes on average (*M* = 10.3; *SD* = 4.5). Help was needed by 35 participants in the first part of the TS-ID adult version (i.e. checklist on traumatic and stressful events), 57 participants needed help in the second part (i.e. PTSD symptoms), and 45 participants needed help in the third part (i.e. impact of the symptoms on daily life). After the TS-ID adult version was completed, the DITS-ID was administered, which took approximately 60 minutes on average. This order was chosen to represent how the screener would be used in practice. The TS-ID proxy version was completed by a person who had regular contact with each participant. This person received the TS-ID proxy version from the researcher, asking to read the questionnaire instructions carefully and then fill out the TS-ID proxy version independently.

An expert meeting was held to establish a cut-off score for TS-ID. The group of experts consisted of four psychologists specializing in the treatment and care of adults with MID-BIF and (suspected) PTSD. Consensus was found that the experts would rather have people wrongly screened positive as a result of the TS-ID score than people wrongly screened negative and not receive further diagnostic assessment of PTSD.

Analyses

To determine the reliability of the adult and proxy versions of the TS-ID, the internal consistency of the total symptom frequency score (section two) was calculated using Cronbach's alpha (SPSS version 27). The validity of the TS-ID adult version and TS-ID proxy version was assessed by comparing the total symptom frequency score of both versions with the final outcome of the DITS-ID (i.e. presence or absence of PTSD) using receiver operating characteristic (ROC) analysis. The discriminative capacity of both versions of the TS-ID was operationalised by calculating the AUC, which reflects their ability to distinguish between individuals with and without PTSD. When an optimal AUC value was obtained, we determined a cut-off point based on the optimal ratio between sensitivity (justified positive prediction) and 1 – specificity (false-positive prediction). In addition, Youden's J (Youden, 1950) was used as a supplementary evaluation to assess overall discriminative power. Furthermore, the positive predictive value (PPV) and negative predictive value (NPV) were calculated to provide additional insight into the predictive accuracy of the different cut-off points. In determining the cut-off score, explicit consideration was given to the outcomes of the expert meeting of professionals who will use the TS-ID in clinical practice.

The number of participants required was calculated using the R package for power calculation in diagnostic tests (Chernick & Liu, 2002; Chu & Cole, 2007; Flahault et al., 2005). Assuming a sensitivity and specificity of .8, an estimated precision of .2 (delta .2), a significance level of .05 and a power of .8 in a sample in which the distribution of yes/no PTSD is equally distributed (prevalence .5), a total of 78 participants were needed. If more than 10% of the questions in the DITS-ID, TS-ID adult version or TS-ID proxy version were not scored, the questionnaire was not included in the analyses. Accordingly, one TS-ID proxy questionnaire was excluded.

Results

Descriptive statistics

Of the 97 participants, 56 (58%) met the criteria for PTSD using DITS-ID. Of the individuals diagnosed with PTSD, 22 were male (39%), and 34 were female (61%); 26 had MID (49%), and 27 had BIF (51%).

Validity and reliability of the Trauma Screener-Intellectual Disability adult version

The validity of the TS-ID adult version was examined by calculating the AUC using ROC analysis. The AUC was assessed by comparing the total symptom frequency score of the TS-ID adult version with the outcome of the DITS-ID (i.e. the presence/absence of PTSD). The AUC value was .94 (N = 97, SD = .03, p < .001). This indicates the excellent validity of the TS-ID in distinguishing between individuals with and without a PTSD diagnosis (see Figure 1).

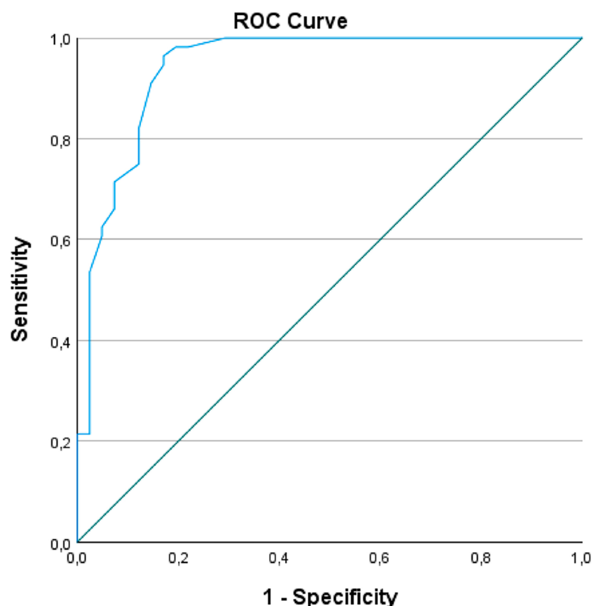

Figure 1. ROC curve for the TS-ID adult total frequency score and final outcome of the DITS-ID (i.e. yes or no PTSD).

Cronbach's alpha for the total symptom frequency score (section two) of the adult TS-ID version was .94, indicating high internal consistency.

Cut-off value of the Trauma Screener-Intellectual Disability adult version

Because the ROC analyses indicated excellent validity of the TS-ID adult version in distinguishing individuals with and without a PTSD diagnosis, a cut-off value was determined for the TS-ID adult version. Based on the results depicted in Table 1, a cut-off score of 18 for the total symptom frequency score of the adult TS-ID was the optimal threshold in accordance with expert consensus, preferring a higher sensitivity at the expense of specificity. A cut-off score of 18 achieved a sensitivity of 96% and specificity of 83%, resulting in a Youden's *J* index of 0.79, a PPV of 89% and a NPV of 94%. Thus, sensitivity and specificity were in balance while diagnostic accuracy was maximal.

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Table 1. Sensitivity, specificity, Youden's J, PPV and NPV for cut-off scores of the TS-ID adult total score.

Cutoff score TS-ID adult	Sensitivity	1- Specificity	Youden's *J*	PPV (%)	NPV (%)
14	1.00	.71	0.71	82.4	100
15	.98	.78	0.76	85.9	97.0
16	.98	.78	0.76	85.9	97.0
17	.98	.80	0.79	87.3	97.1
18	**.96**	**.83**	**0.79**	**88.5**	**94.4**
19	.95	.83	0.78	88.3	91.9
20	.91	.85	0.77	89.5	87.5
21	.82	.88	0.70	90.2	78.3
22	.79	.88	0.66	89.8	75.0
23	.75	.88	0.63	89.4	72.0
24	.71	.93	0.64	93.0	70.4
25	.70	.93	0.62	92.9	69.1
26	.66	.92	0.59	92.5	66.7
27	.63	.95	0.58	94.6	65.0
28	.61	.95	0.56	94.4	63.9
29	.54	.98	0.51	96.8	60.6
30	.50	.98	0.48	96.6	58.8

Note. Bold represents the optimal cutt-off score.

Validity and reliability of the Trauma Screener-Intellectual Disability proxy version

The validity of the TS-ID proxy version was examined by calculating the AUC using ROC analysis. AUC was assessed by comparing the total symptom frequency score of the TS-ID proxy with the final outcome of the DITS-ID (i.e. yes or no PTSD). The AUC value was .60 (N = 91, SD = .06, p = .10), indicating low validity of the TS-ID proxy version for distinguishing between individuals with and without a PTSD diagnosis. Cronbach›s alpha for the total symptom frequency score of the TS-ID proxy version (section two) was .93, indicating high internal consistency.

Because the ROC analyses indicated that the TS-ID proxy version is not a valid instrument for detecting PTSD in people with MID-BIF, a cut-off value was not determined for the TS-ID proxy version.

Discussion

The TS-ID adult version demonstrated high internal consistency and excellent validity in distinguishing PTSD in adults with MID-BIF. A cut-off value of 18 is recommended for the adult version of the TS-ID, with which an optimal balance between sensitivity and specificity was achieved. While demonstrating high internal consistency, the TS-ID proxy version did not have significant validity in distinguishing individuals with and without a PTSD diagnosis.

The effectiveness of the TS-ID proxy version in assessing adults with MID-BIF may be limited by the lack of knowledge of parents (Kooij et al., 2025) and professional caregivers regarding their trauma history (Hoogstad et al., 2023). Furthermore, three of the four PTSD symptom clusters consist of symptoms about thoughts and feelings as a result of experiencing a traumatic event, that is, Intrusions (cluster B), Avoidance (cluster C) and Negative alterations in cognitions and mood (cluster D). Adults with MID-BIF communicate less clearly about their thoughts and feelings with their caregivers (Hassiotis & Turk, 2012; Summers et al., 2017). Therefore, it

may not be surprising that the TS-ID proxy version did not demonstrate significant validity in distinguishing individuals with and without a PTSD diagnosis. This lack of validity underscores the limitations and challenges of using proxy informants for screening for subjectively experienced psychological symptoms, such as for PTSD (Webb et al., 2024).

In our study, a large proportion of the participants required assistance in completing the TS-ID adult version. When assisting persons with MID-BIF to complete self-reports, the nature of the contact between them and the diagnostician can be a confounder, especially when sensitive topics are addressed (Kooijmans et al., 2022). It remains unclear whether the assistance from the master students and the main researcher has influenced clients' responses and consequently affected the validity and cut-off value of the TS-ID adult version. We have taken measures to reduce the influence: (1) To determine if support was needed, we asked participants, after they had read the TS-ID adult version instruction or after the instruction had been read aloud, 'Can you tell me what to do now?' rather than 'Do you know what to do?'; (2) Pilot testing showed that participants could understand the content of the questions; however, if not, we only provided instructions on understanding the question and not on answering it.

Limitations of the study

This study has some limitations that should be considered. First, we examined a specific sample of adults with MID-BIF living in supported housing in the Netherlands, which may limit the generalisability of the findings. Second, PTSD diagnosis was solely based on the DITS-ID rather than on a comprehensive differential diagnostic assessment. Therefore, the rate of PTSD in this sample should not be used as a clinical prevalence estimate. Finally, one of the developers of the TS-ID was also involved in collecting some of the data, which may have led to bias.

Recommendation for future research

The TS-ID version for adults is a new instrument, and future studies on the screener should be conducted in various samples and settings, such as outpatient care settings, forensic care and mental health settings, where many people with MID-BIF receive care and treatment (Nieuwenhuis et

al., 2019). It is recommended that a standardised written procedure be developed to address commonly misunderstood items. Future research should explore how to implement such procedures to support better understanding without biasing the results. This could include investigating which items are well or less well understood across different samples, examining whether comprehension is related to verbal IQ or language skills and determining the most effective method for assisting clients during completion, such as reading items aloud versus using self-administration. Like adults with MID-BIF, children with MID-BIF also have an increased risk of experiencing many life events compared with children without MID-BIF (Dion et al., 2018; McDonnell et al., 2019; Mevissen et al., 2016; Vervoort-Schel et al., 2021). However, a screening tool for PTSD is not yet available in children with MID-BIF. Future studies should adapt and evaluate trauma screeners for children with MID-BIF so that PTSD can be better recognised in children with MID-BIF.

Conclusion

Although adults with MID-BIF have an increased risk of developing PTSD, PTSD is often not well recognised in these individuals (de Vogel & Didden, 2022; Mevissen et al., 2020; Nieuwenhuis et al., 2019). The adult TS-ID version appears to be a promising screening instrument for recognising PTSD in people with MID-BIF. Applying the TS-ID adult version appears likely to reduce the risk of under-diagnosing PTSD and provide adults with MID-BIF with the trauma treatment they need, which ultimately improves their quality of life.

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Chapter 4

Brief intensive EMDR therapy for PTSD in adults with mild intellectual disability or borderline intellectual functioning and behavioural problems: A multiple baseline design study

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Abstract

Background: Individuals with mild intellectual disability (MID; IQ 50–70) or borderline intellectual functioning (BIF; IQ 70–85) are at an elevated risk of post-traumatic stress disorder (PTSD), with PTSD symptoms possibly associated with behavioural problems. It is important to test the effectiveness of trauma-focused treatments, such as eye movement desensitisation and reprocessing (EMDR) therapy, for adults with MID–BIF, PTSD, and severe behavioural problems.

Objective: To determine the safety and effectiveness of brief intensive EMDR therapy carried out by a team of rotating therapists in adults with MID-BIF, PTSD, and severe behavioural problems.

Methods: Using a randomised non-concurrent multiple baseline between-subjects design, 11 adults with MID-BIF, PTSD, and severe behavioural problems received a maximum of 16 intensive EMDR sessions twice daily for a maximum of two weeks from six different EMDR therapists. Primary outcome measurements included severity of PTSD symptoms, PTSD diagnostic status, and adverse events. Secondary outcome measurements included the frequency and severity of behavioural problems, presence of adaptive behaviour, and the use of involuntary care. Outcome measurements were assessed at baseline, during the intervention and post-intervention phases, and at the follow-up phases, and subject to randomisation tests for statistical significance.

Results: Intensive EMDR therapy carried out by a team of rotating therapists resulted in significant decreases in PTSD symptoms ($M_{difference} = 15.84$, $p < .001$) with nine of 11 participants no longer meeting the PTSD diagnostic criteria immediately following treatment and at the 9-week follow-up. Randomisation tests revealed no significant changes in adaptive behaviour, frequency, and severity of behavioural problems. Additionally, no decrease in the use of involuntary care measures was observed. One participant dropped out; no adverse events were observed.

Conclusions: Brief intensive EMDR therapy for individuals with MID-BIF and severe behavioural problems, conducted by a team of rotating therapists, can be done safely and effectively to reduce PTSD symptoms.

Introduction

Individuals with mild intellectual disability or borderline intellectual functioning (MID-BIF; IQ 50-85) may be at an increased risk of developing post-traumatic stress disorder (PTSD) compared to the general population (Mason-Roberts et al., 2018; Mevissen et al., 2020). This elevated risk can be attributed to frequent exposure to traumatic events (McDonnell et al., 2019; Nieuwenhuis et al., 2019) and difficulties in processing these events owing to deficits in adaptive and cognitive functioning (Skelly, 2020). The prevalence of PTSD in this group ranged from 10% to ≥40%, with higher rates observed among individuals living in supported housing (Mevissen et al., 2020; Versluis et al., 2025).

PTSD symptoms in individuals with MID-BIF are similar to those of individuals without intellectual disabilities (Hoogstad et al., 2023; Mevissen et al., 2020). Additionally, these symptoms overlap with behavioural problems such as verbal or physical aggression (Kildahl & Helverschou, 2024; Rittmannsberger et al., 2020). Rittmannsberger et al. (2020) found that the association between trauma exposure and challenging behaviour in individuals with MID-BIF was mediated by the severity and frequency of PTSD symptoms. Partly due to these behavioural problems, PTSD in individuals with MID-BIF often remains undiagnosed (Kildahl et al., 2020) and untreated (Keesler, 2020). Classifying people with PTSD requires more than observing visible behaviour; it requires knowledge of what type of events a person may have been exposed to, and how this is linked to their current symptoms (American Psychiatric Association, 2022). Without such a nuanced approach, individuals with MID-BIF may be directed towards behaviour-based interventions. Such interventions may not treat the underlying problems and when PTSD symptoms persist, restrictive measures are sometimes used as a last resort (e.g. fixation and locked doors) which may lead to more PTSD symptoms. Despite ongoing concerns regarding the efficacy and quality of involuntary care for individuals with intellectual disabilities (Heyvaert et al., 2014, 2015), these practices remain prevalent (Bakkum et al., 2023; Fitton & Jones, 2020), especially in individuals with severe behavioural problems (Hastings et al., 2013). For example, Schippers et al. (2018a, 2018b) found that certain coercive

measures were frequently taken, up to 43.6% (audio surveillance), 41.6% (limited access to rooms/areas), and 33% (locking outer doors) for persons residing in assisted living units for people with intellectual disabilities.

Trauma-focused therapeutic approaches such as eye movement desensitisation and reprocessing (EMDR) therapy have shown promising results for individuals in the general population (De Jongh et al., 2024). However, the application of traditional treatments for PTSD in the general population has been found to be associated with high dropout rates, possibly due to symptom exacerbation, which can be challenging to distinguish from the temporary distress inherent in trauma-focused therapy (e.g. Bongaerts et al., 2022; Lewis et al., 2020; Van Woudenberg et al., 2018). Between one-quarter and one-third of the participants undergoing trauma treatment discontinued treatment, with some studies showing even higher dropout rates (e.g. Niles et al., 2018). To address this issue, intensive trauma treatments have been developed, involving multiple therapy sessions per week or even multiple sessions per day, often with different therapists rotating during sessions to maintain treatment intensity. Intensive trauma treatments have been associated with improved therapeutic outcomes in the general population (Hoppen et al., 2023), and these intensive treatments have resulted in low dropout rates. For example, Van Woudenberg et al. (2018) reported a dropout rate less than 3%, whereas Bongaerts et al. (2022) achieved no dropout.

Although intensive trauma treatments have been shown to be effective in children and adolescents with MID-BIF (Ooms-Evers et al., 2021), the effectiveness of intensive EMDR therapy in adults with MID-BIF and severe behavioural problems has not been investigated. Tests of suitable treatment options, such as intensive EMDR therapy, for adults with MID-BIF and severe behavioural problems are urgently needed for this vulnerable population. The purpose of the present study was to determine the safety and effectiveness of intensive EMDR therapy with a team of rotating therapists in adults with MID-BIF and PTSD. We hypothesised that PTSD symptoms and behavioural problems would significantly decline after treatment, and that participants' adaptive behaviour (i.e. behaviour in daily life, related to PTSD symptoms, such as talking to strangers again; see Methods) would improve, and these changes will persist at the 6-week, 9-week, and 4-month

follow-ups. Additionally, we expect that most participants who met the diagnostic criteria for PTSD at pre-treatment will lose their diagnostic status post-treatment and that the intervention will reduce the use of involuntary care in adults with MID-BIF. Furthermore, we expect that EMDR therapy will not be associated with adverse events.

Methods

Design

A non-concurrent multiple baseline between-subjects design (Coon & Rapp, 2018) was used to investigate the effectiveness of intensive EMDR therapy with rotating therapists in 11 adults with MID-BIF and behavioural problems on the severity of PTSD symptoms, PTSD diagnostic status, adaptive behaviour, frequency and severity of behavioural problems, and the use of involuntary care measures. The design contained 11 AB (A = baseline phase; B = post-intervention phase and follow-up measurements) experiments in which participants were randomly assigned to baseline lengths of five, six or seven weeks. The person conducting the randomisation was masked to participants' identity. The intervention phase consisted of a maximum of two weeks, during which EMDR therapy was administered eight times a week from Monday to Thursday. After the completion of EMDR therapy, there was a three-week post-intervention phase, followed by three follow-up measurements (six weeks, nine weeks and four months after the intervention).

Participants and setting

Adults with MID-BIF (IQ 50-85) living in supported housing of an ID care service in the Netherlands ('s Heeren Loo) who were on the waiting list for EMDR therapy were informed of the study by the first author. The inclusion criteria were that the participants were diagnosed with MID or BIF, were at least 18 years old, met the DSM-5-TR diagnostic criteria for PTSD, had severe behavioural problems classified as Care Intensity Level (in Dutch: Zorg Zwaarte Pakket; ZZP) 7, which represents eligibility for the highest level of care intensity according to the Dutch healthcare authority, indicating the need for intensive support due to severe behavioural problems as described in their client files), and had sufficient Dutch language ability.

Each participant had at least one steady professional caregiver involved during the study period. The exclusion criteria were high suicidal risk and excessive alcohol/drug use which would make it difficult for a participant to attend a therapy sober.

Participation in this study was voluntary. The study protocol was approved by the Medical Research Ethics Committee of the East Netherlands (reference number: 2020-6967- NL75909.091.20). All clients interested in participating in the study received an information letter. Nine participants provided written informed consent to participate in this study. Because of a lack of capacity to provide written consent, legal representatives provided consent for three participants. However, these three participants still provided verbal consent. This resulted in an initial sample of 12 participants. One participant dropped out on the second day of EMDR therapy because he felt overwhelmed by the emotional stress and refused to further participate in this study. Six women and five men aged 21–65 years, participated in this study. Table 1 presents the characteristics of the participants.

Measures

In this study, the primary and secondary outcome measurements were assessed. The frequencies used for these measurements are listed in Table 2. The descriptive statistics of the outcome measurements are listed in Table 3.

Table 2. *Overview of Measurements by Phase and Frequency*

Measurement	Frequency
Participants' Safety (electronic client file)	Extracted by phase
PTSD symptoms (TS-ID)	Twice weekly during all phases and follow-ups
PTSD classification (DITS-ID)	First week of baseline, first and last days of intervention, last week of post-intervention, and three follow-ups
Adaptive behaviour (GAS)	Daily (morning and afternoon) during all phases and follow-ups
Behavioural problems (BPI)	Once weekly during all phases and follow-ups
Involuntary care (electronic client file)	Extracted by phase

Note. DITS-ID = Diagnostic Interview Trauma and Stressors – Intellectual Disability Adult Version; TS-ID = Trauma Screener – Intellectual Disability; GAS = Goal Attainment Scaling; BPI = Behavior Problems Inventory.

Table 1. Participant characteristics, treated events, and number of sessions.

Participant	Sex	Age category	DSM diagnoses / syndrome (other than PTSD or MID-BIF)	IQ	EMDR therapy before	Treated traumatic and stressful memories (number of memories treated)	Number of sessions
1	Male	30-35	Other DSM diagnosis	TIQ: 61 VCI: 66 PRI: 81 WMI: 55 PSI: 48	No	Placed out of home (1) Bullied (2) Aggression in living environment (6) Parents divorced (1) Verbal aggression at home (1)	15
2	Female	20-25	Other DSM diagnoses and syndrome	TIQ: 65 PIQ: 50 VIQ: 65	Yes, but therapy not completed	Sexual violence (1)	16
3	Male	25-30	Other DSM diagnosis and syndrome	TIQ: 79 VCI: 79 PRI: 98 WMI: 77 PSI: 81	No	Seen unpleasant images on social media (1) Bullied (2) Victim of aggression on the street (1) Dead pet (1) Returning nightmare (1) Police related incidents (2)	9
4	Male	25-30	Other DSM diagnosis	TIQ: 69	Yes, but there are untreated traumatic or stressful events.	Domestic violence (2) Bullied (1) Sexual violence (1) Involuntary care (1) Severe storm (1) Parents divorced (1) Verbal aggression at home (2) Witnessed (traffic) accident (1)	16
5	Female	40-45	No other DSM diagnosis or syndrome	TIQ: 69 PIQ: 70 VIQ: 68	No	Illness of a family member (1) Domestic violence (2) Bullied (2) Sexual violence (1) Verbal aggression at home (1) Dead pet (1) Serious physical injury (2)	16

Table 1. continued.

Participant	Sex	Age category	DSM diagnoses / syndrome (other than PTSD or MID-BIF)	IQ	EMDR therapy before	Treated traumatic and stressful memories (number of memories treated)	Number of sessions
6	Female	35-40	No other DSM diagnosis or syndrome	-	Yes, but there are untreated traumatic or stressful events.	Illness of a family member (1) Placed out of home/ to a crisis location (1) Domestic violence (1) Sexual violence (2) Parents divorced (1) Witnessed (traffic) accident (1) Serious physical injury (1)	11
7	Female	25-30	No other DSM diagnosis or syndrome	TIQ: 50	Yes, but therapy not completed.	Natural death of relative (1) Not taken seriously (1) Placed out of home (1) Domestic violence (3) Sexual violence (1) Parents divorced (1) Involvement in drug trafficking (2) verbal aggression at home (3) Mother arrested (1) Forced by mother to steal money (1)	12
8	Female	25-30	No other DSM diagnosis or syndrome	TIQ: 50	No	Illness of a family member (1) Domestic violence (2) Sexual violence (1) Dead pet (1) Seeing mother cut herself (1)	12
9	Male	65-70	Other DSM diagnosis	TIQ: 56 PIQ: 50 VIQ: 58	No	Illness of a family member (1) Natural death of relative (3) Not taken seriously* Placed out of home (1) Domestic violence* Bullied* Sexual violence (1) Aggression in the residential group* Involuntary care (1) Been in prison (1) Parents divorced (1) Accused of sexual abuse (1) Girlfriend breaks up (1)	13

Table 1. continued.

Participant	Sex	Age category	DSM diagnoses / syndrome (other than PTSD or MID-BIF)	IQ	EMDR therapy before	Treated traumatic and stressful memories (number of memories treated)	Number of sessions
10	Female	40-45	Other DSM diagnoses	TIQ: 61 PIQ: 64 VIQ: 58	No	Domestic violence (2) Bullied (3) Sexual violence (2) Aggression in the residential group (3) Involuntary care (3) Been in prison (1) Epileptic seizure (1) Hearing of voices (1) Severe storm (1) Medical procedure (1)	11
11	Male	20-25	Other DSM diagnosis	TIQ: 65 PIQ: 73 VIQ: 63	No	Illness of a family member (1) Natural death of relative (1) Not given enough attention (1) Not taken seriously (3) Placed out of home (1) Placed to crisis location (1) Seen unpleasant images (2) Domestic violence (3) Bullied (1) Seen a burning house (1) Arrested by the police (1) Victim of aggression on the street (2)	11

Note. TIQ = Total IQ; VCI = Verbal Comprehension Index; PRI = Perceptual Reasoning Index; WMI = Working Memory Index; PSI = Processing Speed Index; PIQ = Perceptual IQ; VIQ = Verbal IQ.

* There are no details regarding the number of different memories processed.

Table 3. Descriptive Statistics

Outcome	*n*	*M*	*SD*
PTSD symptoms (TS-ID)	257	25.67	15.98
Adaptive behaviour (GAS)	1164	6.08	77.28
Behavioural problems (BPI) - frequency	152	12.46	11.43
Behavioural problems (BPI) - severity	149	11.51	12.00

Note. n = total number of measurements.

Primary outcome measures

PTSD symptoms

The symptom section of the self-report measure Trauma Screener – Intellectual Disability (TS-ID; Versluis et al., 2025) was used to assess PTSD symptoms. This section consists of 20 questions scored on a 4-point Likert scale (0 = never, 1 = sometimes, 2 = often, 3 = almost always). The total symptom frequency score (range 0-60) was obtained by summing the scores of the 20 questions, in which questions 9, 10, and 15 were divided into several sub-questions. For the latter questions, only the highest score was recorded in the final score. Higher scores indicate greater levels of PTSD symptoms. The TS-ID has good psychometric properties, including high internal consistency and excellent validity for distinguishing PTSD in adults with MID-BIF based on the outcomes of the DITS-ID (Versluis et al., 2024). Participants completed the symptom questions of the TS-ID, with the DITS-ID timeline (see DITS-ID) placed next to the TS-ID, which provided a clear visual cue for the (traumatic and stressful) events. A professional caregiver was present to explain the items of the TS-ID if needed.

DSM-5-TR PTSD diagnostic status

PTSD diagnostic status was assessed using the Diagnostic Interview Trauma and Stressors – Intellectual Disability – Adult Version (DITS-ID; Mevissen et al., 2018). This clinical interview takes approximately 45–60 minutes to complete and is used to classify DSM-5-TR PTSD. The first section consists of 31 questions (yes/no/other) regarding Type A and stressful life events (not meeting the A-criterion but are experienced negatively by the person). The symptom section includes 39 PTSD symptom questions (PTSD criteria B, C, D, and E) and four questions on potential atypical trauma symptoms (yes/no/other). Subsequently, a thermometer card is used to support the

person in indicating impairment in daily life on a scale from 0 (totally not) to 8 (very much). If the interference score is four or higher (criterion G), the participant is asked when the symptoms started to confirm if they have been present for over a month (criterion F). Finally, the interviewer checks if the symptoms are not due to medication, drug use, medical conditions, or somatic disorders (criterion H). There are several versions of the DITS-ID. This study used the adult version and follow-up measurements, which takes approximately 15 min. First, the participant is asked whether the participant has experienced a traumatic or stressful event since the last DITS-ID administration, followed by symptom questions and the thermometer card. The DITS-ID adult version has good psychometric properties, with high internal consistency, good-to-excellent interrater reliability, and good construct validity (Mevissen et al., 2020; Versluis et al., 2024). All DITS-ID interviews were conducted by trained master's students and an independent psychologist.

Participants' safety

The safety of the participants was defined as the absence of adverse events, including increased suicidal ideation or being placed in a crisis intervention facility. All recorded adverse events were extracted from the participants' electronic client files.

Secondary outcome measures

Adaptive behaviour

Goal Attainment Scaling (GAS) was used to monitor adaptive behaviour on a 6-point scale (−3 = regression, − 2 = initial situation, − 1 = less than the target, 0 = target, + 1 = more than the target, + 2 = much more than the target). Adaptive behaviour was defined in agreement with the participant, professional caregiver, and their psychologist and focused on (for the professional caregiver) observable behaviours that the participant was expected to be capable of without PTSD. Adaptive behaviour was determined for each participant prior to EMDR therapy, and professional caregivers scored the GAS scale daily (twice a day, in the morning and afternoon).

Behavioural problems

The Behavior Problems Inventory (BPI; Rojahn et al., 2001) indexes the frequency and severity of a problem behaviour. Both the frequency and severity scores can be derived from the total BPI score. The frequency score of the problem behaviour (51 items) was measured on a 5-point Likert scale (0 = never, 1 = monthly, 2 = weekly, 3 = daily, and 4 = hourly). The severity score of the problem behaviour (51 items) was measured on a 3-point Likert scale (1 = mild problem, 2 = moderate problem, 3 = severe problem). Total scores for both frequency and severity were calculated, with higher scores denoting more frequency/severity of problematic behaviour. In our study, we used the Dutch version of the BPI, which has adequate to good psychometric properties including good inter-rater, intra-rater, internal consistency, and convergent validity (Dumont et al., 2014). A professional caregiver who had regular contact with the participants completed the BPI.

Involuntary care

Involuntary care measures is defined as: 'Any care opposed by a client or client-representative' (Staatsblad, 2018) and were recorded by professional caregivers of the participants in the 'Involuntary care reporting system' in clients' electronic files. This system was documented for each participant, and both predetermined (multidisciplinary agreed) involuntary care (e.g. 'bedroom door locked at night') and incidents of involuntary care (e.g. 'fixation by professional caregivers'). A study by Schippers et al. (2018a, 2018b) on the 'Involuntary Care Reporting System' of 's Heeren Loo demonstrated that involuntary care could be reliably recorded with this system. All recorded involuntary care was extracted from participants' electronic client files.

Intensive EMDR-therapy and procedure

The participants received EMDR therapy twice daily for a maximum of two weeks from six therapists. Three therapists were certified 'EMDR Europe practitioners', while the other three had completed the basic and advanced EMDR courses accredited by the Dutch EMDR Association. All therapists had treated at least 20 clients with MID-BIF for PTSD before the start of the study. The authors were not involved as therapists in the current study. Treatment integrity was monitored by the first author and an accredited supervisor from the Dutch EMDR Association (third author) through three supervision sessions during the baseline phase and three supervision

sessions during the intervention phase. These sessions involved reviewing the video recordings and discussing the cases to ensure adherence to the treatment protocol.

A week before therapy (baseline), the professional caregivers and, if possible, the client's relative received psychoeducation about PTSD and EMDR therapy. Therapy sessions were conducted twice daily (morning and afternoon) from Monday to Thursday, over a two-week period. During the first therapy session (60 min), a case conceptualisation based on the timeline of the DITS-ID was established. For this case conceptualisation, all traumatic (meeting A-criterion) and stressful events (not meeting A-criterion) on the timeline were assessed for distress using a scale for the Subjective Units of Disturbance (SUD) 0 = no distress to 10 = extreme distress and were ordered from high to low SUD. This resulted in a list of traumatic and stressful events that could be treated (case conceptualisation). The first therapy session included psychoeducation for participants about PTSD and EMDR therapy. Participants were not trained in the use of coping skills or emotion regulation techniques prior to treatment (De Jongh et al., 2016). After the first session, all subsequent sessions consisted of 60 min of EMDR therapy. We used the EMDR therapy protocol for children and adolescents up to 18 years of age (De Roos et al., 2021). This protocol includes the same eight phases as the standard protocol developed by Shapiro (2018) but is adapted for individuals with lower language skills, such as individuals with MID-BIF. If necessary, cognitive interweaves were applied as described by Shapiro (2018). In line with the working memory theory (see De Jongh et al., 2024, for a review), working memory taxation during EMDR therapy was achieved using several tasks, specifically eye movements (following fingers or a light bar), which were combined with pulsators. If the participant was unable to perform eye movements, an additional distracting task, such as tapping, counting, or a simple calculation task, was added. These tasks were also added when the SUD score remained high (Matthijssen et al., 2021). Once a memory was successfully processed, it was checked off on the case conceptualisation with the participant, and the therapy moved to the next traumatic event. Therapy was completed after all memories of case conceptualisation were processed. The treatment duration varied depending on the number of traumatic events and the time required for the processing of traumatic memories.

Statistical analyses

All analyses were conducted in R (R Core Team, 2023, version 4.3.2) and RStudio (Posit, 2024, version 2024.09.0). To determine the required sample size, we calculated the number of permutations for this non-concurrent multiple baseline between-subject design. For a robust randomisation test, the number of possible starting points (k) must exceed 20, ensuring 1/k ($p < .05$; Bulté & Onghena, 2009). With 11 participants and three starting points, our study yielded 177 randomisation possibilities, resulting in 1/177 ($p < .001$), ensuring sufficient statistical power. To assess the test-retest reliability within the baseline phase, the (Intraclass Correlation Coefficient; ICC; Koo & Li, 2016) using a one-way random effects model to measure consistency, was calculated for the BPI, TS-ID, and GAS.

To calculate the non-overlap of all pairs (NAP) for TS-ID, GAS, and BPI for each participant, the *SingleCaseES* package (Pustejovsky et al., 2024) was used. For the TS-ID and BPI, an improvement in symptoms was indicated by a decrease in scores, and for the GAS, an improvement was indicated by an increase. The baseline (phase A) was compared to the post-intervention and follow-up phases (phase B). Missing values were excluded from the analysis. The effect size was assessed based on the guidelines of Parker and Vannest (2009).

Group-level randomisation tests were performed for the TS-ID, GAS, and BPI (total and subscales) scores with the *scan* package (Wilbert & Luke, 2023) to compare the baseline (phase A) with the post-intervention and follow-up phases (phase B) using a t-statistic to measure phase differences. Randomisation tests were conducted using the distributions of the data based on random samples of $n = 177$ possible permutations. Missing values were interpolated prior to analysis.

PTSD symptom frequency scores (TS-ID) were plotted for visual analysis using the *scplot* package (Wilbert, 2023). PTSD diagnostic status (DITS-ID) was visually analysed using a table. The use of involuntary care was documented and described in the results section.

Results

Eleven participants engaged in an average of 13 therapy sessions (range = 9-16). On average, participants had experienced 12 traumatic and stressful events at the start of the study, and at the end of the study, ten participants had processed all of their traumatic and stressful events (SUD = 0). Table 1 provides a summary of the number of therapy sessions attended by each participant, along with the stressful and traumatic events treated during therapy. The ICC for the baseline TS-ID total frequency scores was .97, for the BPI total frequency scores .94, for the BPI total severity scores .95, and for the GAS scores .92, all indicating high reliability of the measurements ($p < .01$).

Primary outcome measures

PTSD symptoms

Figure 1 illustrate the visual analysis of PTSD symptom frequency scores (TS-ID) throughout the study. The NAP values of the TS-ID scores of individual participants indicated four participants with medium and seven participants with large differences between the A and B phases (see Table 4). The randomisation test showed a statistically significant group-level effect (observed $M_{difference} = 15.84$, $p < .01$).

Table 4. NAP Values for TS-ID Total Frequency Scores.

Participant	NAP	SE	Effect size category
1	.92	.07	Medium
2	.79	.10	Medium
3	.87	.09	Medium
4	.99	.01	Large
5	1.00	.01	Large
6	.95	.05	Large
7	.84	.09	Medium
8	.98	.02	Large
9	1.00	.01	Large
10	1.00	.01	Large
11	1.00	.01	Large

Note. NAP = non-overlap of all pairs; TS-ID = Trauma Screener Intellectual Disability; SE = standard error.

4

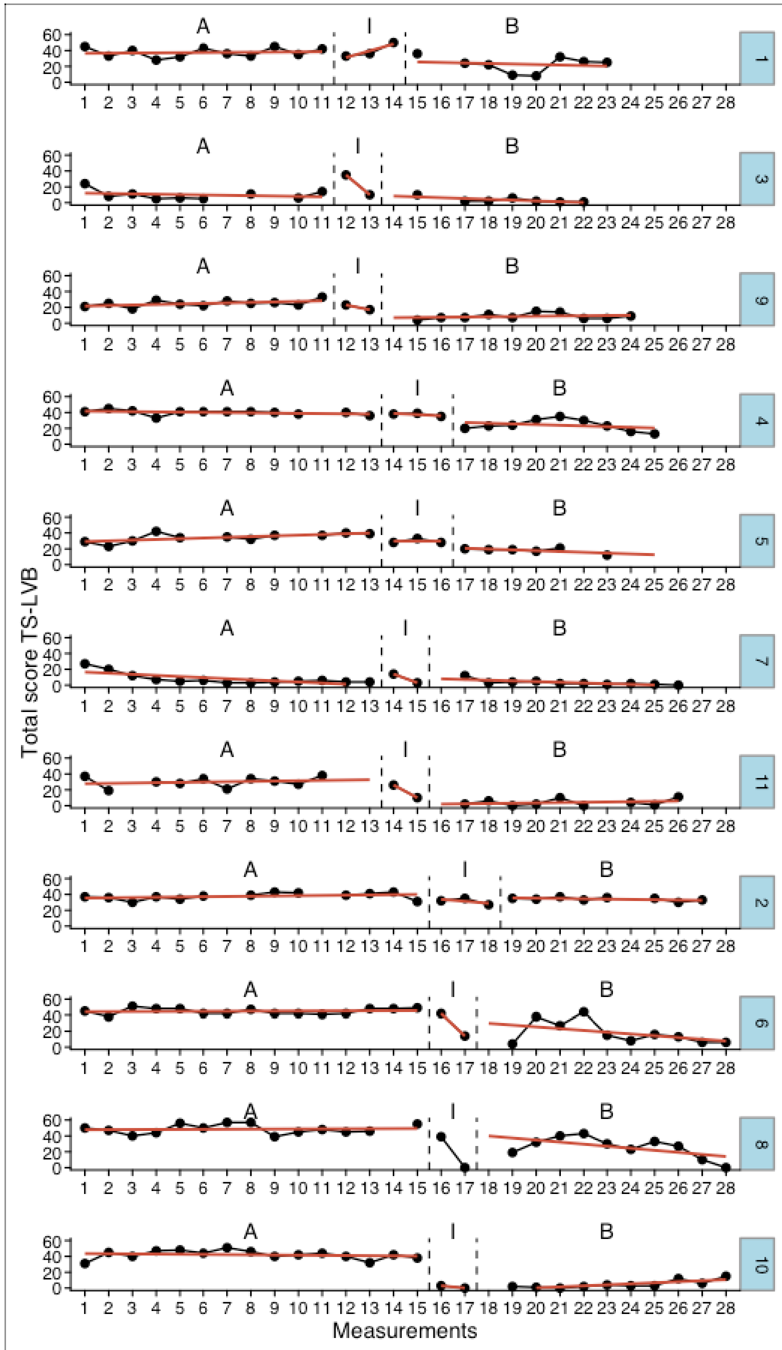

Figure 1. Visual Analysis of TS-ID Frequency Scores.

Note. Participants are ordered according to the baseline lengths. A = baseline; I = intervention; B = post-intervention and follow-up. A = baseline; I = intervention; B = post-intervention and follow-up.

DSM-5-TR PTSD diagnostic status

Table 5 presents the DSM-5-TR PTSD diagnostic status per participants by different phases. Among the 11 participants, nine no longer met the diagnostic criteria for PTSD one week after the start of treatment. Participant 8 was reclassified as having PTSD at the first follow-up measurement, but this classification was no longer present at the second follow-up. In participants 2 and 5, the PTSD classification persisted throughout the study.

Table 5. DSM-5-TR PTSD classification (DITS-ID).

Phase	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
Baseline start	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline end	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intervention	No	Yes	No	No	Yes	No	No	No	No	No	No
Post-intervention	No	Yes	No	No	Yes	No	No	No	No	No	No
Follow-up I	No	Yes	No	No	yes	No	No	Yes	No	No	No
Follow-up II	No	Yes	-	No	-	No	No	No	No	No	No
Follow-up III	No	Yes	-	No	-	No	No	No	No	No	No

Note. P = participant; baseline start = start baseline; baseline end = end baseline; intervention = after one week of treatment; post-intervention = three weeks after treatment; follow-up I = six weeks after intervention; follow-up II = nine weeks after intervention; follow-up III = four month after intervention.

Participants' safety

One participant stayed in a crisis shelter during the baseline and intervention phases but actively participated in the therapy. After the intervention, he returned home. Crisis placement was considered unrelated to the intervention, as confirmed by both the participant and the professional caregiver. No other adverse events were reported in the participants' electronic records.

Secondary outcome measures

Adaptive behaviour

The NAP values for the GAS scores indicated that the differences between A and B ranged from a weak effect to medium and one large effect (Table 6). The randomisation test was not statistically significant (observed $M_{difference} = 8.81$, $p = .712$). Participant 1 was excluded from both analyses due to too many missing values (87%).

Table 6. NAP Values for GAS and BPI scores.

Participant	GAS Scaling scores			BPI Total frequency score			BPI Total severity score		
	NAP	SE	Effect size category	NAP	SE	Effect size category	NAP	SE	Effect size category
1	--	--	--	.47	.19	Weak	.42	.21	Weak
2	0.53	0.06	Weak	.19	.13	Weak	.25	.15	Weak
3	1.00	0.01	Large	.58	.20	Weak	.60	.19	Weak
4	0.57	0.08	Weak	.60	.18	Weak	.58	.18	Weak
5	0.92	0.05	Medium	.70	.17	Medium	.62	.20	Weak
6	0.62	0.06	Weak	.87	.10	Medium	.93	.06	Large
7	0.79	0.03	Medium	.68	.15	Medium	.68	.15	Medium
8	0.88	0.04	Medium	.36	.18	Weak	.38	.18	Weak
9	0.54	0.07	Weak	.67	.20	Medium	.60	.19	Weak
10	0.44	0.05	Weak	.74	.13	Medium	.66	.19	Medium
11	0.42	0.06	Weak	.53	.21	Weak	.58	.20	Weak

Note. NAP = non-overlap of all pairs; GAS = Goal Attainment Scaling; SE = standard error; BPI = Brief Problem Inventory; NAP values for participant 1, GAS scores could not be calculated because too many values were missing (87%).

Behavioural problems

The NAP values for the BPI total frequency and severity scores indicate that the differences between A and B range from mainly weak effects to medium and (one) large effects (see Table 6). Randomisation tests were not statistically significant for the total frequency (observed $M_{difference}$ = 0.80, p = .407) and the total severity of behavioural problems (observed $M_{difference}$ = 0.73, p = .367).

Involuntary care

For one participant, one extra case of predetermined (multidisciplinary) involuntary care (off-label psychopharmacological medication) was recorded by professional caregivers of the participant during the intervention phase compared to the baseline. Another participant experienced one incident of involuntary care, recorded by the professional caregiver, during the follow-up phase. No other changes in recorded involuntary care measures or incidents of involuntary care were recorded.

Discussion

The results demonstrated a significant reduction in PTSD symptoms, with nine out of 11 participants no longer meeting the PTSD diagnostic criteria post-intervention. These improvements were maintained at both the 9-week and 4-month follow-ups, indicating the sustained efficacy of intensive EMDR therapy in this population. These findings align with previous research on intensive trauma therapy in children and adolescents with MID-BIF and PTSD (Ooms-Evers et al., 2021). Importantly, the intervention showed no adverse events, underscoring its safety.

Only one participant discontinued therapy. This is consistent with the low dropout rates consistently reported in intensive trauma-focused treatment programs (for example, Bongaerts et al., 2022; Voorendonk et al., 2023) in the general population. The intensive format, with frequent scheduled sessions has been found to be capable of reducing avoidance behaviour and fostering greater engagement (Hendriks et al., 2018; Szafranski et al., 2017).

The outcomes for adaptive behaviour indicated improvements in some participants, whereas others exhibited less noticeable changes. Meaningful changes in adaptive behaviour may require direct, targeted intervention aimed at learning new skills and adapting the environment. For example, adaptive behaviour, such as 'the participant independently walking home from work', may be facilitated by a reduction in PTSD symptoms, but the ongoing involvement of professional caregivers may result in the caregivers continuing walking alongside the individual, preventing actual improvement in adaptive behaviour in the participant.

Some participants showed minimal change in behavioural problems, whereas others showed weak improvement. In addition, no change (meaning no increase and no decrease) in involuntary care measures were observed, which could be attributed to the continued presence of behavioural problems. Although brief tracks of trauma-focused treatment have generally been found to reduce the severity of PTSD symptoms (Hoppen et al., 2023; Voorendonk et al., 2023), this may not necessarily

translate into changes in behavioural problems (Cuijpers et al., 2020). Because the focus of EMDR therapy is on reducing PTSD symptoms by processing participants' traumatic memories rather than targeting behavioural problems, the ability to directly address these problems may be limited. There is presently limited research on the association between behavioural problems and PTSD symptoms in individuals with MID-BIF. The current findings suggest that intensive trauma treatment is feasible and effective despite severe behavioural problems. Further research is needed to assess whether intensive trauma treatment may augment the effectiveness of interventions to reduce behavioural problems or vice versa. Alternatively, trauma treatment and behavioural interventions may reach their effects independently from each other and may enhance quality of life also independently.

Study limitations

First, although the randomised non-concurrent multiple baseline design offers robust insights, it does not provide information on which subgroups within the MID-BIF population benefit more or less from the intervention. Second, the PTSD classification was not measured repeatedly across the different study phases, which prevented us from measuring a statistically significant loss of PTSD diagnostic status. A third limitation is the potential selection bias due to loss to follow-up measurements. The design used in the current study does not account for this bias, as not all participants were included in the analyses, which may have affected the validity and generalisability of the results. Fourth, we investigated a specific sample of adults with MID-BIF, all living in supported housing in one Dutch ID care service. Further research is needed to determine whether the observed effects can be replicated in more diverse or larger samples, which would enhance the applicability of these treatment approaches across various clinical contexts.

Conclusion

In conclusion, the results of this study support the efficacy and safety of intensive EMDR therapy using a rotating team of therapists to reduce PTSD symptoms among adults with MID-BIF and behavioural problems. Although the treatment demonstrated significant improvements in PTSD

symptoms, the effects on adaptive behaviour and behavioural problems were more variable, suggesting the need for further research to explore complementary approaches. Despite the small sample size, our results provide valuable insights and clinical implications for offering accessible trauma therapy to this population implicating that severe behavioural problems may not necessarily be a contraindication for intensive trauma treatment in individuals with MID-BIF.

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Chapter 5

Brief Intensive EMDR therapy with rotating therapists: Experiences of adults with mild intellectual disability or borderline intellectual functioning, PTSD, and severe behavioural problems

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Abstract

Background: This study explored the experiences of individuals with mild intellectual disability (MID: IQ 50-70) or borderline intellectual functioning (BIF: IQ 70-85), post-traumatic stress disorder (PTSD), and severe behavioural problems, with brief Intensive EMDR therapy delivered by a team of rotating therapists.

Purpose: Preliminary research indicates that Intensive EMDR therapy with a team of rotating therapists is effective in treating PTSD in individuals with MID-BIF. To optimise treatment outcomes, it is important to understand how they experience this treatment format.

Methods: In-depth semi-structured interviews were conducted with three adults with MID-BIF and severe behavioural problems, before and after therapy. Interviews with three professional caregivers (before and after therapy), three EMDR therapists (after therapy), and field notes were used to contextualise the experiences of the participants.

Results: Interpretative phenomenological analysis (IPA) revealed that participants started Intensive EMDR therapy with rotating therapists holding high expectations. One participant discontinued early, two completed treatment, and all reported positive experiences with both the intensive format and therapist rotation model. The intensity was seen to support continuity and engagement, particularly compared to weekly therapy sessions. Minimal involvement of the (professional) support systems was also observed.

Conclusions: Participants with MID-BIF and severe behavioural problems generally reported positive experiences with brief Intensive EMDR therapy delivered by a team of rotating therapists.

Introduction

Individuals with mild intellectual disability (MID; IQ 50-70) or borderline intellectual functioning (BIF; IQ 70-85) may be at a higher risk of developing post-traumatic stress disorder (PTSD) compared to the general population (Mason-Roberts et al., 2018; Nieuwenhuis et al., 2019; Versluis et al., 2025b). The prevalence of PTSD in this group ranges from 10% to 40%, with higher rates reported among those living in supported housing (Mevissen et al., 2020a; Versluis et al., 2025b). Frequent exposure to traumatic events (McDonnel et al., 2019; Nieuwenhuis et al., 2019) and difficulties in processing these events owing to deficits in adaptive and cognitive functioning (Skelly, 2020) can be attributed to this elevated risk.

Although PTSD has an acute onset, its recovery can run a protracted course. Treatments that only require a brief period to work are therefore particularly helpful. Preliminary research indicates that Intensive EMDR therapy with a team of rotating therapists is effective in treating PTSD in adults with MID-BIF (Versluis et al., 2025a). To optimise treatment outcomes, it is important to understand how clients experience this treatment format.

EMDR for individuals with MID-BIF

EMDR therapy is an eight-phase, structured therapy aimed at resolving symptoms resulting from traumatic memories (Shapiro, 2018). EMDR is currently the most extensively studied PTSD treatment among individuals with MID-BIF, and findings suggest that it is a safe, feasible, and potentially effective therapy for this group (e.g., Byrne et al., 2020; Penninx Quevedo et al., 2021; Verhagen et al., 2023). For most of these studies, the EMDR protocol for children and adolescents up to 18 years of age (De Roos et al., 2021) was applied, which is adapted for individuals with lower language skills and has proven to be suitable and potentially effective for individuals with MID-BIF (Byrne et al., 2020; Penninx et al., 2021; Schipper-Eindhoven et al., 2024; Verhagen et al., 2023). This protocol includes the same eight phases as the standard protocol developed by Shapiro (2018).

Schipper-Eindhoven et al. (2024) conducted a systematic review of 13 studies to identify and categorise the difficulties therapists face when

applying EMDR therapy to individuals with MID-BIF and the adaptations used to overcome these difficulties. They divided the adaptations made into three main categories: EMDR delivery (e.g., tuning to the developmental level of the client, simplifying language, decreasing pace), involvement of others (e.g., involving family or support staff during or in between sessions), and the therapeutic relationship (e.g., taking more time, adopting a supportive attitude).

Intensive trauma treatment

Intensive trauma treatment can be an effective alternative to weekly treatment for PTSD (Gahnfelt et al., 2025; Hoppen et al., 2023; Hurley, 2018; Sciarrino et al., 2020). Intensive trauma treatment is often performed by a team of different therapists, rather than by a single therapist. This approach, known as working with rotating therapists, means that patients have therapy sessions with different professionals during their treatment. Such treatment programs can consist of a single therapy such as EMDR therapy (e.g., Hurley 2018), or a combination of various therapeutic components, such as prolonged exposure, psychoeducation and physical and creative activities (e.g., Voorendonk et al., 2023). Intensive trauma treatment appears to be as effective as weekly trauma treatment (Hoppen et al., 2023; Hurley, 2018) and may lead to faster symptom reduction (Gutner et al., 2016). Consequently, intensive trauma treatment appears to result in lower dropout rates than weekly trauma treatment (Gahnfelt et al., 2025). For example, Van Woudenberg et al. (2018) reported a dropout rate of less than three percent and Bongaerts et al. (2022) achieved no dropouts, which is much lower than the dropout rates in weekly PTSD treatments, ranging from 20% to over 30% (Imel et al., 2013; Niles et al., 2018).

For individuals with MID-BIF, intensive trauma treatment with rotating therapists has also shown promising results, including for children and adolescents (Ooms-Evers et al., 2021), families (Mevissen et al., 2020), and adults with severe behavioural problems (Versluis et al., 2025a). Versluis et al. (2025) investigated the efficacy of Intensive EMDR therapy delivered twice a day, four days a week for two weeks by a team of six EMDR therapists. PTSD symptoms were significantly reduced, with 9 out of 11 participants no longer meeting the diagnostic criteria post-treatment, and one of twelve dropping out.

Experiences with intensive trauma treatment

In a questionnaire study with participants in the general population, Van Minnen et al. (2018) found that participants generally preferred treatment from a rotating team of therapists rather than from an individual therapist. A qualitative study by Thoresen et al. (2022) reported that participants experienced daily sessions as very demanding but worth the effort in terms of reducing symptoms. Therapists' rotation was also highlighted as important for treatment efficacy. Butler and Ramsey-Wade et al. (2024) conducted in-depth interviews to explore the experiences of participants undergoing Intensive EMDR therapy. EMDR therapy was perceived by their participants as safe when carried out intensively, promoting the autonomy, and involvement of the participants.

Individuals with MID-BIF and rotating therapists

In psychotherapy and trauma treatment literature, on people in the general population, therapeutic alliance is recognised as a key predictor of treatment outcomes (Baier et al., 2020; Flückiger et al., 2018; Horvath et al., 2011; Howard et al., 2022). These authors define therapeutic alliance as a collaborative relationship between therapist and client, built on agreement about treatment goals, consensus on therapeutic tasks, and the development of a positive emotional bond, an understanding grounded in Bordin's pantheoretical model (Bordin, 1979, 1994).

Therapeutic alliance may be particularly important for individuals with MID-BIF and severe behavioural problems. Cognitive deficits, limited social and communicative skills, and attachment difficulties (Adams & Emerson, 2015; Hamadi et al., 2021; Van Herwaarden et al., 2022) may make it more challenging to build trust, agree on goals, understand the tasks in the same way, and experience a bond. Additionally, individuals with MID-BIF relatively frequently experience interpersonal traumatic events, such as physical, sexual, and emotional violence (Rittmansberger et al., 2020; Wigham & Emerson, 2015), which may increase their need for safe and continuous interpersonal relationships. Against this background, the use of rotating therapists to deliver intensive trauma treatments may appear at odds with what clients with MID-BIF may need. However, even if the trauma therapy does not offer an opportunity for fulfilling interpersonal needs, for example

because therapy is given by a team over a brief period, it may still be possible to establish trust and agreement on goals and tasks (i.e., aspects of therapeutic alliance) between client and team, if the team takes sufficient time for this and adopts a supportive attitude (Schipper-Eindhoven et al., 2024).

Current study

This study explored the experiences of adults with MID-BIF, PTSD, and severe behavioural problems who participated in the study by Versluis et al. (2025a), a brief Intensive EMDR therapy with rotating therapists. Three participants were interviewed before and after the treatment to gain a deeper understanding of their experiences. These perspectives were further enriched and contextualised through interviews with professional caregivers and therapists. Observations during the treatment process and field notes were included to provide a more comprehensive view of the therapeutic experience.

Methods

Study Design

This qualitative study employed an interpretative phenomenological analysis (IPA) approach to explore the experiences of individuals with MID-BIF, PTSD and severe behavioural problems who had participated in a study on brief Intensive EMDR therapy with rotating therapists (Versluis et al., 2025a). IPA focuses on understanding how individuals make sense of their personal experiences within their specific context, offering insight into the subjective narratives of participants through in-depth interviews and detailed case-by-case analysis (Pietkiewicz & Smith, 2014; Smith & Osborn, 2008). IPA is not about the generalisation of research findings but focuses on the perceptions and understanding of a particular and often homogeneous set of individuals. Although the number of participants varies across the studies from single case studies to studies with more than 15 participants, Smith and Osborne (2008) state that a sample of three allows for sufficient in-depth engagement with each individual case, but also allows for a detailed examination of similarities and differences, convergence, and

divergence, offering a nuanced understanding of how individuals make sense of their lived experiences. In line with the idiographic nature of IPA, thematic saturation was not pursued (Hale et al., 2007; van Manen et al., 2016). Instead, we aimed for interpretive depth within individual cases, using multiple data sources per participant.

Participants and setting

This study expands on the work of Versluis et al. (2025a), who examined the efficacy of Intensive EMDR therapy with a team of rotating therapists with individuals with MID-BIF, PTSD, and severe behavioural problems. To recruit participants for the current study, the first three individuals who had been included in the original study by Versluis et al. (2025a) were invited. However, as one of them declined to participate, the fourth included participant was invited and agreed to take part in this study. This resulted in a final sample size of three, as originally intended. All the participants received an information letter and provided written informed consent for participation. The study protocol was approved by the Medical Research Ethics Committee of the East Netherlands (reference number: 2020-6967-NL75909.091.20). Participation in this study was voluntary. The three participants were all men, aged between 20 and 30 years. Two of them were classified with BIF and one with MID. All participants met the DSM-5-TR diagnostic criteria for PTSD and had severe behavioural problems (classified as Care Intensity Level [in Dutch: Zorg Zwaarte Pakket; ZZP] 7), which represents eligibility for the highest level of care intensity according to the Dutch healthcare authority, indicating the need for intensive support due to severe behavioural problems as described in their client files).

All participants lived in supported housing on a care park in the Netherlands ('s Heeren Loo). The house accommodated six to eight other adults with MID or BIF. Each participant had their own bedroom with an ensuite bathroom and toilet and received 24-hour care from professional caregivers. One participant worked four days a week, with professional caregivers providing supervision and support. Another participant was fulfilling a community service sentence (as mandated by the court because of an offence he had committed) before starting the therapy. Despite various attempts to find

suitable daytime activities or employment, this participant, along with the third participant, was unsuccessful in securing such opportunities.

For each participant, a professional caregiver was involved in the study and regularly supported them in their daily life. Additionally, three of the six EMDR therapists involved in the therapy study (Versluis et al., 2025a) participated in this study.

Brief Intensive EMDR therapy with rotating therapists

Participants received EMDR therapy twice daily for a maximum of two weeks, provided by six different EMDR therapists. All were certified 'EMDR Europe practitioners' or had completed the basic and advanced EMDR courses accredited by the Dutch EMDR Association and had treated at least 20 clients with MID-BIF for PTSD using EMDR therapy prior to the start of the study. The participants received therapy in a room located in a building on the care park where they lived. See Versluis et al. (2025a) for a detailed description of therapy. A week before therapy, psychoeducation about PTSD and EMDR therapy was provided to professional caregivers and, if possible, the participants' relative. It was agreed with the participants' team of professional caregivers that before and after therapy sessions, participants would resume their usual daily activities, such as going to work. In cases where existing programs did not provide sufficient activities, a tailor-made plan was developed. These activities may include craft or household chores. A professional caregiver, and the participant determined whether a professional caregiver would be present during the therapy sessions. Participants were not trained in coping skills or emotion regulation techniques prior to the treatment (Josefa et al., 2019).

The first therapy session included making a case conceptualisation (a list of traumatic and stressful events to be treated), and psychoeducation about PTSD and EMDR therapy was provided to the participant. Each subsequent therapy session consisted of 60 minutes of EMDR therapy, whereby the EMDR protocol for children and adolescents up to 18 years of age (De Roos et al., 2021) was used. Once a memory was successfully processed, it was marked as complete on the participant's case conceptualisation list. Therapy then moved on to the next traumatic event. Therapy was completed after

all memories of the case conceptualisation were processed. Treatment duration varied depending on the number of traumatic and stressful events and the time required to process these events.

Data collection

In-depth interviews were conducted to generate a description of the participants' expectations (before) and experiences (after) of receiving Intensive EMDR therapy with a team of rotating therapists. A total of fifteen interviews were conducted, and three participants and their professional caregivers were interviewed two weeks before and two weeks after the therapy, whereas the three therapists were only interviewed two weeks after the therapy. The main topics of the interviews were: 'Expectations/ experiences with EMDR therapy', 'Expectations/experiences of the intensive of the therapy', and 'Expectations/experiences of therapy with six different therapists.

The interviews were conducted individually with each participant, professional caregiver, and EMDR therapist in their preferred setting (i.e. participants' homes, care facilities, or therapy room). The first author, who conducted all the interviews, did not participate in the therapeutic process, minimizing potential bias related to dual involvement. The interviews were recorded and transcribed verbatim. Observational data and field notes were recorded immediately after each interview, and field notes from the intervention study (Versluis et al., 2025a) were examined.

Analysis

Data analysis was conducted according to the IPA guidelines (Smith & Osborn, 2008). Four researchers (first, second, last author, and a master's student at Radboud University) collaborated in this process. A shared analysis was central to ensuring the trustworthiness of the findings. Researchers engaged in seven discussion meetings (see step three, four and six below) to compare interpretations and reduce potential bias, facilitating a more nuanced understanding of the data. For example, during one meeting, a researcher suggested that a participant's responses appeared socially desirable because of the frequent repetition of the interviewer's words, while another researcher highlighted instances where

the participant contradicted the interviewer, indicating that the responses of the participant were not (all) socially desirable. These discussions helped develop a more balanced and accurate interpretation of the data.

This analysis was guided by the steps outlined by Smith et al. (2022). In the first step, the first author and the master student read the transcripts of the participants, their professional caregivers, and the EMDR therapists several times to develop a comprehensive understanding of the content and ensure deep engagement with the participants' experiences. In the second step, the first author and the master's student took detailed notes on each transcript, focusing on key elements and emotions, while the second and last author took more general notes. In step three, the first, second and last author and the master student identified patterns based on the initial notes, while in the fourth step the first, second, and last author and the master student met twice to analyse the data of the first participant. In the first meeting, they discussed the interviews with the first participant, while they focused on the interviews with the professional caregiver and therapists in the second meeting. After analysing the data of participant one, the four researchers moved on to the fifth step, in which they repeated steps one, two, three and four for participant two and three to ensure that each individual experience was fully understood and that the analysis remained consistent across all cases. Finally, in step six, after all cases had been analysed, the researchers held a final meeting to identify overarching patterns across the participants. General topics that captured common experiences and variations within the dataset were developed.

Results

The results were structured around the three main topics discussed in the interviews. In the first section, the individual expectations and experiences of each participant regarding EMDR therapy are described. The second section focusus on the participants' expectations and experiences regarding the intensity of EMDR therapy. Finally, the third section explores their expectations and experiences of receiving EMDR therapy from six therapists.Expectations of and experiences with EMDR therapy

Participant one

> *Participant one (before therapy): "I just need that therapy to calm my mind but also to be able to trust people again. Because it's also very commercial you need to get food into the kiosk. Well, you cannot just get it. You have to call abroad and do all that. You have to trust people, you have to go there."*

Prior to therapy, participant one said he was motivated to engage in therapy. His future dream is to start a skate park abroad, and in his private room, he has built a model of it, complete with ramps, seating areas, and a small kiosk. He said that EMDR therapy would help him to trust people again, which he sees as essential for making his dream come true. At present, his lack of trust prevents him from, for instance, calling people abroad to arrange supplies for the kiosk in his envisioned skate park. This reflects a tension between his wish to trust others and his fear of doing so, a dilemma that could complicate trauma treatment when working with rotating therapists.

> *Participant one (before therapy): "I have had it [EMDR therapy] before, but I could not... [I am afraid that] I might get angrier afterwards... That I will withdraw a lot, I am afraid of that... That is why I stopped before, and now I just want it to go well."*

Participant one had previously received EMDR therapy, but reported that it was not successful at that time. The participant was unable to explain why the therapy was ineffective. However, later in the interview, he expressed concerns that he might become angry during EMDR therapy and, consequently, display aggressive behaviour towards the therapist. He was also worried that he might withdraw, isolate himself from his private room, and stop attending therapy. Despite these concerns, participant one was determined to fully engage in the therapy and hoped that it would be effective this time.

> *Participant one (after therapy): "When I did it [EMDR therapy] the first time, I started crying.... I just hate it. I just hate being angry. I hate crying. I hate that feeling... And then I thought: I need to*

> *stop... Then I tried it [EMDR therapy] once more, and then I did not do it anymore."*

> *Therapist three (after therapy): "He is too afraid of his reaction when he gets therapy... That he has no control over it."*

During the first EMDR therapy session, participant one cried intensely while thinking of a traumatic memory. He later reported feeling overwhelmed by sadness and anger, finding it difficult to experience these emotions. According to the therapist, he was particularly afraid of his own intense reaction, which he felt unable to control. Participant one struggled to cope with this and did everything he could to avoid feeling emotions. For example, he avoided thinking about the traumatic memory during the session and was unable to select the most distressing image from the traumatic memory. Despite this, participant one continued to attend the therapy sessions. During subsequent sessions, he exhibited seemingly threatening behaviour, such as placing his feet on a table and saying that he could kick very hard with them. Although he said he wanted to continue therapy, he repeatedly left the sessions. Therapists interpreted his behaviour as a way of avoiding confronting traumatic memories and accompanying emotions. Throughout the sessions, the therapists attempted various strategies to break the avoidance behaviour, including psychoeducation, offering a flashforward (i.e. a technique in which the patient is confronted with a future situation reflecting their anxiety about therapy) and applying EMDR 2.0, that is, activation of the trauma memory combined with intensive distracting tasks and enhancing motivation to counter avoidance (Matthijssen et al., 2021). Despite these efforts, the therapy process could not be resumed, and the therapy was terminated after six sessions, in joint decision with participant one. His strong emotional reactions and withdrawal may reflect a lack of perceived safety during therapy but seemed to be primarily driven by fear of being overwhelmed by his own emotions in the first therapy session.

Participant two

> *Participant two (before therapy): "[Things that get better after therapy] just in everyday life, like when you go to the shop, especially in the evening... Sleeping better."*

Professional caregiver two (before therapy): "I am actually really glad he is going to do it [EMDR therapy], because I am especially curious to see the young man he might become afterwards."

Participant two had never received EMDR therapy before. He said he was motivated to participate and hoped that the therapy would make everyday activities, such as going to the shop, easier. However, he was unable to explain what he precisely meant by this or why he expected this outcome. He especially hoped that his sleep would improve, as he frequently experienced nightmares and often lay awake at night. His professional caregiver said that she was pleased he was starting the therapy. Although she could not specify what she expected to change as a result of successful EMDR therapy, she was curious about its potential effects on the participant.

Participant two (before therapy): "Not talking about it [traumatic memories] is not an option anyway."

Professional caregiver two (before therapy): "I expect that he will just go through it [EMDR therapy] completely fine, because it [EMDR therapy] is functional for him, but I think there is still a chance that he might shut down."

Although participant two could not clearly articulate what he expected from the EMDR therapy, he was aware that discussing his traumatic memories would be necessary during treatment. Professional caregiver two expected him to participate well in therapy because it was important to him. However, she also acknowledged the possibility that he would shut down and would be unable to talk if he became overwhelmed.

Professional caregiver two (after therapy): "He broke down, he was crying like a little child, just really crying. In the end, we drove to the sheepfold. He cried the entire way in the car, but nothing came out. Then we walked around a bit there, looked at the sheep, and he started to calm down a bit. I did not talk about it any further, and later on he brought it [traumatic event] up again."

The start of EMDR therapy for participant two was difficult. He missed three therapy sessions during the first three days of treatment. He remained in bed despite his caregivers encouraging him to attend the therapy. When he attended therapy, he exhibited dissociative behaviour; he sat silently in his chair and stopped responding to the therapist, which meant that he was unable to follow the therapy properly. The therapists decided to let him walk around during the sessions so that the movement would prevent him from lying down quietly and shutting himself off the therapy process. His tension increased, and he ended the therapy session with a Subjective Units of Disturbance (SUD) score of 10 (0 = no distress to 10 = extreme distress). After this session, his professional caregiver decided to drive with him to a sheepfold so that she could talk to him calmly. During the drive, he began to talk spontaneously about his intrusive distressing memories. This moment showed how emotional safety created outside the therapy room, with a trusted caregiver, enabled him to open up, underlining the importance of relational security in supporting affect regulation. On the same day, therapists discussed that the traumatic memory they had been treating up to that point might have been triggered by other traumatic memories. They decided to treat these other traumatic memories first using EMDR therapy. When the participant returned to therapy the next day, the therapy progressed step-by-step. Ultimately, the original memory, which had previously ended at a SUD of 10, was successfully treated to reach a SUD of 0, meaning that the patient no longer experienced distress when thinking of the traumatic memory.

> *Participant two (after therapy): "When they ask questions, I think back and then you think back. And they [EMDR therapists] say; then you think about it and there are all kinds of thoughts that come to mind... And then you get distracted and they say; yes, that image, yes no, that image is no longer there."*

> *Participant two (after therapy): "Then [in the second week] you already know what to do because you know what's going to happen."*

Participant two appears appeared to have experienced a learning effect. As he became more familiar with the therapeutic approach, he found it easier to follow instructions, which may have improved the effectiveness of the therapy. During the Intensive EMDR therapy sessions, participant two took notes on his phone about his progress. This seemed to have helped him gain more control and provide a better overview. The learning effect and support he gained from his notes appear to have contributed to the success of the therapy.

> *Participant two (after therapy): "[Therapy helped] yes... Still, because you never know if it [traumatic symptoms] will come back."*

> *Professional caregiver two (after therapy): "He will be returning to work soon, or at least to the farm two or three days a week... I also think he is a little more open, including towards new caregivers."*

Two weeks after EMDR therapy, participant two indicated that the therapy had helped him. However, he was not yet convinced that the improvements would be permanent and wanted to wait and see before he could be definitively positive about the effect of therapy. His professional caregiver noted that he was becoming more open, including new caregivers, and slowly resumed his daily activities. For example, one week after the interview, he would start working part-time on a farm. She considered this a positive development, as he had no structured daily routines.

Participant three

> *Participant three (before therapy): "I don't really know what to expect from EMDR itself... That I have to follow a light with my eyes, which moves very quickly. That I have to do it and that at the same time I have to feel that I actually have to respond to it. I suspect that's how it will work."*

Participant three already received EMDR therapy three times and, therefore, had a fairly clear idea of how an EMDR therapy session would proceed. The first two times, the therapy was successful. The last time he felt it did not have the right effect, although he could not explain why it did not work at that time. He hoped to use EMDR therapy to finally process his traumatic memory.

> *Participant three (before therapy): "I expect EMDR to help me, at least to the extent that I will be able to control my aggression better... Because what often happens is that I physically attack my professional caregiver, so I really squeeze or scratch or bite or hit or kick... I am just still very afraid that if I continue with that kind of behaviour, the home will no longer be my place... I am afraid of closed institutions, such as crisis centers, partly because my mother warned me about them."*

Participant three hoped that EMDR therapy would help him better control his aggression. He was worried that if he did not become less aggressive, he would be forced to leave the supported housing where he lived and would be placed in a closed institution, such as a crisis centre. He hoped that the therapy would help him change his behaviour, enabling him to continue living in his current home.

> *Therapist three (after therapy): "If you look at participant three, for example, who actually had a very nice process, who came and noticed quite quickly that he already had marked traumatic memories on his list [for successfully treated traumas]... So he noticed quite quickly that he was making good progress through the list... Yes, that is of course super motivating.'*

> *Participant three (after therapy): "That I was yawning a lot during the therapy treatment and every therapist told me: this is because you are working on it, so it's very normal, everyone has that during EMDR therapy, they said."*

Participant three attended every session and tried his best. Each time a traumatic memory was treated, he marked it with a tick on the list of traumatic memories to be treated. This symbolised the progress he made, which motivated him to continue with the treatment. He sometimes felt insecure when things occurred during therapy that he could not control, such as laughing or yawning during the sessions. After the therapists explained that reactions such as laughing or yawning were normal and part of the process and that the therapy was going well, he decided to continue with the therapy. Predictability and consistent reassurance across therapists appeared to support his motivation and trust, as the therapists responded in a similar manner to his reactions, which helped him feel understood and safe despite the rotation of therapists.

> *Participant three (after therapy): "Unfortunately, I feel that I have not quite achieved the goal [of becoming less angry] yet... I think I get angry less often, but I also think I get less intense than before... I am satisfied with that."*

> *Professional caregiver three (after therapy): "During those weeks [in which EMDR therapy was administered], I did notice a certain lightness... That he really did become happier and lighter there [with EMDR therapy]."*

After the first few sessions, participant three, as well as his professional caregivers and parents, noticed positive changes. During the first week of therapy, his caregiver contacted the therapists to report that Participant three had become calmer and happier. Even after the therapy ended, participant three remained positive about the results; he felt calmer, although he could still get angry but less often and less intensely. However, he would have preferred that 'it would be completely over' and that he would never get angry again.

Expectations/experiences of the intensity of the EMDR therapy

> *Participant one (before therapy): "I have not thought about that [the intensity of the therapy] yet, but now that I think about it, I*

find it very exciting ... I hope this [Intensive EMDR therapy] works, because once a week did not help."

Participant two (before therapy): "[The advantage of intensive therapy is] that you remember things better... Because if you do it in six months, you do not remember what you said six months ago."

Participant three (before therapy): "The intensive part does not matter to me... No, I do not mind that it is a lot. Because I just think it is important that it gets done... For me, it is all about the EMDR."

Although the participants were informed about the structure of the program before EMDR therapy, they did not fully understand what the treatment program would look like in practice. Nevertheless, they seemed generally positive. Participant one indicated that the intensive approach was exciting and hoped it to be more effective than the weekly sessions he previously attended. Participant two considered the intensity as an advantage because he believed that if sessions were too far apart, previously discussed topics could be forgotten. His notes and learning experiences also helped him to gain a better understanding of the process. Participant three had no objections to the intensive approach and believed that the number of sessions would not matter, as long as he could achieve his goal with the therapy. For him, the most important thing was that the therapy would help him processing his traumas, and he was convinced that the intensity would help in this regard.

Participant one (after therapy): "That I got rid of it [EMDR therapy] faster."

Professional caregiver one (after therapy): "I was afraid that if he had done it once a week, he would have dropped out more easily, because he would have had so many days to think of all kinds of reasons not to... I do not think that it [the intensity of the EMDR therapy] was very negative. I think it [the intensity of

EMDR therapy] has been very positive. He did not find it difficult either."

Participant two (after therapy): "I think if you have it [EMDR therapy] every week for so many weeks, then I'm going to do other things... If you only go once a week and you do not go for two weeks... then I think in the third week: hey, they have not said anything yet."

Therapist two (after therapy): "I think if you have that [not coming to EMDR therapy] a few times in a row and you see each other weekly, the barrier to come back becomes quite high."

After participant one had stopped therapy, he indicated that if he started EMDR therapy again, he would prefer an intensive program to make faster progress. His professional caregiver believed that an intensive program was more suitable for participant one, as he might have dropped out even sooner in a less intensive therapy format. Participant two shared a similar view: he indicated that if the therapy had been less intensive, he would quickly start doing other things and lose his motivation. He believed that if there was too much time between sessions (e.g. two weeks), he would already have doubts about the progress in the third week, which could result in him ending the therapy prematurely. Both participants indicated that they would have been more likely to stop if the therapy had been less intensive, which emphasised their preference for more intensive EMDR therapy. Therapist two confirmed this notion as she explained that when there is more time between sessions, the barrier for returning to therapy becomes considerably higher, which can lead to more dropouts. Participant three did not express any specific opinions on this matter.

Expectations/experiences of EMDR therapy with six different therapists

Participant one (before therapy): "[Exciting], that I have to trust those people."

> *Participant two (before therapy): "[Different therapists] I do not really know what to think about that... I do not know how it will be."*

> *Participant three (before therapy): "No, I do not mind... that six therapists are involved."*

The three participants did not have clear expectations about working with multiple therapists in advance, and the expectations differed from one another. Participant one had reservations about receiving EMDR therapy from different therapists because he found it difficult to trust people. For example, when there was a new professional caregiver, he preferred to stay in his private room, so he did not have to see the new professional caregiver. Participant two said that he did not know what to expect from the therapy and that he had no clear expectations of the different therapists either. Participant three had no problems working with six different therapists.

> *Participant two (after therapy): "I do not know if I had all six [therapists]. I thought there were three or so."*

> *Participant three (after therapy): "Well, I, um... I could handle it [different therapists]... I actually liked it... I liked that they were different."*

After completion of the therapy, participants two and three indicated that they had no problems working with multiple therapists. Participant two did not realise that he had seen six different therapists; he thought there were only three. Participant three actually enjoyed receiving therapy from different therapists.

> *Participant one (after therapy): "The other [therapist] didn't understand me and that made me angry, so I just told her to go... Because she had known me longer [I preferred her]... She already knew most things."*

> *Professional caregiver one (after therapy): "He was just looking for excuses not to go anymore, to escape, in my opinion."*

> *Therapist three (after therapy): "He did the same thing [being angry] with my colleague therapist. He was so inappropriate and angrily pissed, he did the same thing with me... He chose me [as his preferred therapist], but he also walked out angry on me once... [For the next therapy session], I would have two people there. I would not do it all by myself."*

After completing therapy, participant one spoke negatively about one therapist. According to the professional caregiver, the participant exhibited challenging behaviour during the session with this therapist, such as verbally threatening the therapist: "I can kick you with these feet." However, according to the therapist and professional caregiver, participant one also exhibited this behaviour with other therapists, even with the therapist he preferred most. Despite his preference for this therapist, the sessions, even with her, were unsuccessful. According to the professional caregiver, participant one was mainly looking for excuses to escape therapy. Based on the interviews, it remained unclear whether the rotating therapists had a negative impact on the therapy process of participant one. Nevertheless, the therapists noted that if therapy with participant One were to continue, it would be better for multiple therapists to be involved because they would then be better able to provide him with EMDR therapy. This suggests that, although the rotation of therapists may have contributed to participant one's discontinuation of therapy, the therapists recognised that they could only continue delivering the therapy through shared responsibility, which is particularly noteworthy given that these therapists all lacked prior experience working as a team

Discussion

Participants started Intensive EMDR therapy with a team of rotating therapists with high expectations. While expectations were not always met, participants reported mainly positive experiences with the therapy's

intensity and the use of rotating therapists. Even the participant who discontinued treatment held a favourable view of both, based on in-depth interviews with him, his caregiver, and a therapist.

Intensity of the EMDR therapy

Findings support the notion that intensive trauma treatment not only seems to be effective for adults with MID-BIF and severe behavioural problems (Versluis et al., 2025a) but is also experienced positively by participants themselves. Participants reported that two daily EMDR sessions helped them stay committed and complete their treatment. This aligns with findings about experiences of individuals in the general population, in which intensive trauma treatment is associated with increased engagement (Butler & Ramsey-Wade, 2024; Thoresen et al., 2022). Although one participant dropped out, two stated that they would have been more likely to discontinue therapy if it had been less intensive, which matches the low dropout rates found in research on intensive trauma treatment in the general population (Bongaerts et al., 2022; Van Woudenberg et al., 2018).

EMDR therapy with six different therapists

Two of the three participants were very positive about working with different therapists, while one was less positive. These results align with those of Van Minnen et al. (2018), who found a general preference for treatment by a rotating team rather than by a single therapist in the general population. Several elements presented in the current study may have contributed to the participants' positive experiences, despite the involvement of six different therapists. All therapists were highly experienced in both EMDR therapy and working with individuals with MID-BIF and appeared to share a professional and supportive attitude, which has been identified as a relevant adaptation in EMDR for individuals with MID-BIF (Schipper-Eindhoven et al., 2024). In addition, the brief intensive EMDR therapy followed a structured format, using the child and adolescent EMDR protocol (De Roos et al., 2021), which is written in simplified language and explicitly states that clients cannot make mistakes. The use of this protocol makes the treatment transferable between therapists, and the format allowed for the involvement of caregivers, which may have further supported participants, as recommended for individuals with MID-BIF by Schipper-Eindhoven et

al. (2024). These elements may have supported agreement on treatment goals and tasks, aligning with key components of a therapeutic alliance (Bordin, 1979, 1994), even though a positive emotional bond was likely not established. In contrast, it remains unclear whether working with rotating therapists influenced the third participant's decision to stop therapy.

Involvement of the Support System

A component of Intensive EMDR treatment was the involvement of participants' professional caregivers and, if possible, a relative of the participant. They received psychoeducation and were expected to ensure that participants attended therapy sessions on time, provide emotional support after difficult sessions, and help them resume their daily routines. Nevertheless, participants' support systems were only minimally involved in the therapy process. Only one clear example was identified in which a professional caregiver provided support by accompanying the participant and being available to listen to him, and this seemed incidental rather than structurally integrated into the treatment. Despite this limited involvement, most participants still made progress. The extent to which a more active and consistent involvement of the support system before, during, and after therapy could have improved outcomes remains unclear.

Limitation and future research

IPA is not designed for generalisation (Pietkiewicz & Smith, 2014; Smith & Osborn, 2008), and as common in these types of studies, there is a notable homogeneity within the set of participants: all were males aged between 20 and 30, living in supported housing at a care park of a single ID care service in the Netherlands, and all were treated by the same therapists at the same time. It is important to acknowledge that the particular institutional care environment, staff expertise, and cultural context of this setting likely shaped participants' experiences, which means these findings may not fully translate to other care settings or populations. Future studies could examine whether similar experiences and outcomes are observed in more diverse populations, including different age groups, gender, living situations, and care contexts.

While researchers held multiple discussion meetings to compare interpretations and reduce potential bias, and participants shared both positive and negative experiences, it cannot be entirely ruled out that social desirability may have influenced some responses during the interviews. All therapists involved were highly experienced in both EMDR and working with people with intellectual disabilities, and they received supervision multiple times during the therapy process, which likely reduced differences in how therapists conducted EMDR (e.g., timing of cognitive interweaves or dealing with avoidance behaviour). This raises questions about the potential role of therapists' expertise in the acceptability and effectiveness of this treatment format. Specifically, it would be valuable to explore whether participants' positive experiences with different therapists are influenced by therapist expertise and whether these experiences would remain consistent if the treatment implementation became less uniform.

Finally, building on clients' experiences, further research into the organisational aspects of the therapy process is needed. One area worth exploring is whether increased involvement of professional caregivers, for instance, by accompanying clients after sessions to provide emotional support, could enhance the therapeutic process.

Conclusion

Brief Intensive EMDR therapy with rotating therapists is not only effective (Versluis et al., 2025a), but also well received by adults with MID-BIF and severe behavioural problems, who generally express positive experiences regarding both the intensity of the treatment and working with multiple therapists

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Chapter 6

General discussion

The studies presented in this dissertation aimed to improve the identification, diagnostic assessment and treatment of post-traumatic stress disorder (PTSD) in adults with mild intellectual disability (MID) or borderline intellectual functioning (BIF). Adults with MID-BIF are at a higher risk of developing PTSD than those in the general population (Mason-Roberts et al., 2018; Mevissen et al., 2020a). However, PTSD is often not recognised in these individuals (Mevissen et al., 2020a; Nieuwenhuis et al., 2019). This may be partly explained by the limited availability of suitable diagnostic instruments until recently (Hoogstad et al., 2025), which has complicated the accurate identification and assessment of PTSD in these individuals. Once diagnosed, it is important that individuals with MID-BIF receive PTSD treatment, because untreated PTSD can have serious consequences (Benedict et al., 2020; Davis et al., 2022; Gibson et al., 2020). Although the number of treatment studies is growing in individuals with MID-BIF, especially on eye movement desensitisation and reprocessing (EMDR) therapy (for example, Byrne et al., 2022; Penninx et al., 2021; Verhagen et al., 2023), there was still limited evidence at the start of our study regarding the effectiveness of EMDR therapy in adults with MID-BIF and severe behavioural problems. Behavioural problems could make EMDR therapy more difficult to initiate or maintain, which underscores the importance of examining whether EMDR therapy is feasible and potentially effective in individuals with MID-BIF and behavioural problems. Research among individuals in the general population shows that intensive trauma-focused treatment is particularly effective, as it leads to a relatively fast reduction in PTSD symptoms and low dropout rates (for example, Dell et al., 2023; Gahnfelt et al., 2025; Hoppen et al., 2023; Oprel et al., 2021; Wachen et al., 2019). Until recently, no studies had explored the effectiveness of intensive treatment formats for adults with MID-BIF and severe behavioural problems or how these individuals experience such intensive treatment.

To address the gaps in diagnostic assessment and treatment, this dissertation had the following four objectives. First, to further examine the psychometric properties of the adult version of the Diagnostic Interview Trauma and Stressors – Intellectual Disability (DITS-ID-adults). Second, to develop and evaluate a PTSD screener for adults with MID-BIF. Third, to investigate the effectiveness of brief intensive EMDR therapy with rotating

therapists for adults with MID-BIF and severe behavioural problems who were classified with PTSD. Fourth, to explore the experiences of three individuals with MID-BIF and severe behavioural problems who received this treatment.

This chapter summarises the four studies included in this dissertation and highlights two key findings: "PTSD can be recognised in adults with MID-BIF through the Trauma Screener – Intellectual Disability (TS-ID)" and "Brief intensive EMDR therapy with rotating therapists was effective in our group of adults with MID-BIF, PTSD, and severe behavioural problems", and ends with the conclusion.

Summary of chapters

The first study, as described in Chapter 2, assessed the reliability and construct validity of the DITS-ID-adults (Mevissen et al., 2018) in 97 adults with MID-BIF living in supported housing. The interrater reliability of the DITS-ID-adults proved good to excellent. The construct validity of the DITS-ID-adults was good, based on positive correlations between the Brief Symptom Inventory –18, revised Dutch version (BSI–18), Impact of Event Scale-Intellectual Disability (IES-ID), Anxiety, Depression, and Mood Scale (ADESS) and DITS-ID-adults, and mainly positive correlations between the Behavior Problems Inventory (BPI) and DITS-ID-adults (r = .21 to r = .75). Furthermore, it was found that reporting potentially traumatic events listed under the DSM-5-TR A criterion for PTSD was associated with fulfilling PTSD symptom criteria. A large proportion of participants met PTSD criteria (58%), while only 7% had a documented PTSD diagnosis in their clinical file prior to participation in the study. These findings highlight the urgent need to improve PTSD recognition in individuals with MID-BIF.

The second study, detailed in Chapter 3, evaluated the adult self-report and proxy versions of the Trauma Screener–Intellectual Disability (TS-ID), which were adapted from the Dutch Child and Adolescent Trauma Screener (Dutch abbreviation KJTS; Kooij et al., 2025; CATS-2; Sachser et al., 2022), for use in adults with MID-BIF. The adult self-report version showed high internal consistency (Cronbach's α = .94) and excellent validity (AUC = .94) in distinguishing PTSD in adults with MID-BIF. Optimal specificity

and sensitivity were determined at a cut-off score of 18. Although the proxy version of the TS-ID demonstrated excellent internal consistency (Cronbach's α = .93), it did not statistically distinguish PTSD in adults with MID-BIF. These findings underline the potential of the TS-ID self-report version as a reliable screening instrument for identifying PTSD in adults with MID-BIF while also highlighting the limitations of the TS-ID proxy-report version when used in these individuals.

The third study, presented in Chapter 4, examined the safety and effectiveness of brief intensive EMDR therapy delivered by a team of rotating therapists for 11 adults with MID-BIF, PTSD and severe behavioural problems. The findings showed significant decreases in PTSD symptoms, with nine out of eleven participants no longer meeting the PTSD diagnostic criteria immediately after treatment and at the 9-week follow-up. Although some participants showed small to medium improvements in adaptive behaviour and behavioural problems, these changes were not consistent across participants and therefore did not indicate an overall pattern of improvement for the participant group. The latter conclusion also applies to the use of involuntary care measures. Only one participant dropped out of the therapy and declined to complete further questionnaires for Study 3 (Chapter 4). The intervention showed no adverse events, underscoring its safety. These results suggest that brief intensive EMDR therapy with a team of rotating therapists is a safe and effective treatment option for reducing PTSD symptoms in adults with MID-BIF and severe behavioural problems.

The fourth study, as described in Chapter 5, qualitatively explored the experiences of three adults with MID-BIF, PTSD and severe behavioural problems who received brief intensive EMDR therapy with rotating therapists. Interpretative phenomenological analysis revealed that the participants started intensive EMDR therapy while holding high expectations of the extent to which the treatment might change their lives. One participant discontinued therapy early, and two completed the therapy. All participants reported positive experiences with intensive therapy, and two expressed positive experiences with the therapists' rotation format. Intensity was perceived to support continuity and engagement, particularly when compared with weekly therapy sessions. Minimal involvement of

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the participants' (professional) support systems was observed, with only incidental support from caregivers rather than structured integration in the treatment.

Key findings

This section presents two key findings derived from the four studies presented in this dissertation. These findings bring together the results across studies and conclude by reflecting on their implications for clinical assessment, treatment, and future research.

Key finding 1: PTSD can be recognised in adults with MID-BIF through the Trauma Screener – Intellectual Disability (TS-ID)

In Study 1 (Chapter 2), adults with MID-BIF, living in supported housing and receiving 24-hour care from ID care services, were studied. Among the 97 participants, 58% could be classified as having PTSD according to the DITS-ID, whereas only 7% had received a PTSD diagnosis prior to participation. This discrepancy aligns with findings from other studies and illustrates how PTSD often remains undetected in these individuals. Mevissen et al. (2020a) examined 106 adults with MID-BIF who were receiving care from ID care services and found a PTSD prevalence of 38% based on the DITS-ID-adults, while only 6% had a PTSD diagnosis recorded in their client file. Nieuwenhuis et al. (2019) conducted a study in 570 individuals with severe mental illness in a tertiary mental health care setting and reported a suspected PTSD rate of 48% among those with suspected MID-BIF, based on an older screening instrument for PTSD. Nevertheless, PTSD was recorded in only 2% of the client files. Together with our own findings, we may conclude that although PTSD is relatively common in adults with MID-BIF in clinical settings, it is not frequently recognised in clinical practice. These findings highlighted the urgent need to improve PTSD recognition in individuals with MID-BIF, because it is likely that if PTSD is not recognised, effective trauma treatment will not be provided.

As described in the General Introduction (Chapter 1), professional caregivers and clinicians face several challenges in recognising PTSD in individuals with MID-BIF, and several explanations have been proposed for this. One explanation is that professional caregivers are frequently unaware of the

traumatic events that individuals with ID have been exposed to, which hinders the identification of PTSD in this group (Hoogstad et al., 2024). Another explanation why PTSD is often not recognised in adults with MID-BIF may lie in the fact that when individuals with MID-BIF also have behavioural problems (e.g., irritability, lethargy, stereotyped behaviour, aggression towards others, or self-injurious behaviour), professional caregivers may focus primarily on managing and regulating behavioural problems, which can distract their attention from recognising possible PTSD symptoms (McNally et al., 2021). This is particularly problematic given that PTSD and behavioural problems are associated in people with MID-BIF, as observed in Study 1 (Chapter 2) and as reported in other research (Mason-Roberts et al., 2018; McNally et al., 2021; Rittmansberger et al., 2020).

The masking of PTSD symptoms by behavioural problems closely resembles the phenomenon of diagnostic overshadowing, in which PTSD symptoms are misattributed to the characteristics of ID or to symptoms of other mental health disorders that are already diagnosed (Jopp & Keys, 2001; Wilsocki & Zalta, 2024). This phenomenon forms a third explanation for why PTSD symptoms are often not recognised in adults with MID-BIF in clinical settings. As a result of diagnostic overshadowing, PTSD symptoms may be inaccurately attributed to symptoms of other mental health conditions, such as autism, mood disorder, attention deficit hyperactivity disorder (ADHD), or the ID itself. A notable proportion; that is, 30 out of 97 (31%) participants in Studies 1 and 2 (Chapters 2 and 3), had at least one additional DSM-5 diagnosis (other than MID, BIF, or PTSD) recorded in their client file, including autism spectrum disorder (21%), mood disorder (4%), anxiety disorder (2%), personality disorder (3%), and ADHD (11%). This likely increased the risk of diagnostic overshadowing in this group.

A contributing factor for not recognising PTSD in individuals with MID-BIF is that the current PTSD guidelines do not sufficiently address individuals with MID-BIF. While the multidisciplinary PTSD guidelines (Federatie Medisch Specialisten, 2025) only briefly mention individuals with (M)ID, they do not mention those with BIF. These guidelines do not include any recommendations for screening, as the guidelines are aimed for the situation when PTSD is already suspected. However, as demonstrated in Studies 1

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and 2 and in research by Mevissen et al. (2020a) and Nieuwenhuis et al. (2019), PTSD is often not suspected in adults with MID-BIF. Although the guidelines note that both the assessment and treatment of individuals with (M)ID may require adaptations, it is not specified what these adaptations should involve. Overall, the characteristics and needs of people with MID-BIF are insufficiently addressed in the guidelines, which may contribute to PTSD not being recognised and adequately treated within this population.

A final important factor for not recognising PTSD in adults with MID-BIF is the limited availability of suitable diagnostic instruments until recently (also see Hoogstad et al., 2025), which has complicated the accurate identification and assessment of PTSD in adults with MID-BIF. The DITS-ID, which was introduced in 2018, represented a first step for improving the recognition of PTSD in adults with MID-BIF. In Study 1 (Chapter 2), we examined the psychometric characteristics of the DITS-ID and found that it was a reliable and valid instrument for classifying PTSD in adults with MID-BIF, consistent with research conducted by Mevissen et al. (2020a). However, the DITS-ID is not suitable for initial PTSD screening. At the start of this research project, no screening instrument was available that had been developed specifically for adults with MID-BIF and that aligned with the DSM-5-TR criteria for PTSD. The lack of such a screener likely contributed to not recognising PTSD in this group. As described in the General Introduction (Chapter 1), it is essential that a PTSD screener for adults with MID-BIF is both aligned with the current DSM-5-TR criteria for PTSD and adapted and validated for adults with MID-BIF.

In Study 2 (Chapter 3), we evaluated the adult self-report and proxy versions of the Trauma Screener–Intellectual Disability (TS-ID), which were adapted from the Dutch Child and Adolescent Trauma Screener (Dutch abbreviation KJTS; Kooij et al., 2025; CATS-2; Sachser et al., 2022), for use in adults with MID-BIF. The self-report version of the TS-ID demonstrated high internal consistency and excellent validity in distinguishing PTSD in adults with MID-BIF. In contrast, while the proxy version also demonstrated high internal consistency, it did not show validity in distinguishing PTSD. This finding partly contrasts with research on the original KJTS (Kooij et al., 2025), on which the TS-ID was based. In that study, the proxy version

was primarily completed by parents (86%), which likely contributed to the better recognition of PTSD symptoms by proxy. Parents are usually closely involved in their children's daily lives, unlike many professional caregivers, who often have limited insight into their clients' trauma history (Hoogstad et al., 2024). The findings from Study 2 indicate that the TS-ID self-report version is a psychometrically reliable and valid instrument for screening for PTSD in adults with MID-BIF. This enables the identification of PTSD cases that might otherwise have gone unnoticed in adults with MID-BIF. The TS-ID self-report version represents a crucial step in recognising PTSD in adults with MID-BIF, facilitating earlier identification and better access to trauma treatment.

When interpreting this key finding, several limitations should be taken into account. First, according to the DSM-5-TR, determining whether an individual meets criteria for ID should not rely solely on IQ scores. Assessment of adaptive functioning is equally important in determining whether an individual meets diagnostic criteria for ID. In clinical practice and research, the term BIF is often used for individuals with IQ scores roughly between 70 and 85, although BIF is not defined as a formal diagnostic category in the DSM-5-TR and guidance on its specific characteristics and assessment is limited. In Study 1 and 2 (Chapter 3 and 4), all participants had previously been identified as having MID or BIF in their client file. However, in many cases, this was primarily based on IQ scores, with limited information available on adaptive functioning. As a result, it cannot be established with certainty whether all participants would meet the current DSM-5-TR criteria for MID, or whether they would fall within the commonly used range of BIF based on a comprehensive assessment of adaptive functioning. Second, we investigated a specific sample of adults with MID-BIF in Study 1 and 2 (Chapter 3 and 4), all living in supported housing of ID care services in the Netherlands, which may limit the generalisability of the findings.

This key finding has several implications for clinical practice. First, the TS-ID can be used not only when PTSD is suspected in adults with MID-BIF, but also if they present with behavioural or psychological problems. As described above, PTSD symptoms in this group are often masked by behavioural problems or overshadowed by other mental disorders or characteristics of

ID (Jopp & Keys, 2001; McNally et al., 2021; Wilsocki & Zalta, 2024), which often lead to PTSD not being recognized in adults with MID-BIF. The TS-ID may therefore help to clarify whether trauma-related symptoms may underlie these behavioural or psychological problems. Second, the TS-ID can be used after an individual has experienced a potentially traumatic event to actively monitor whether PTSD symptoms develop. Recently, a study in individuals with MID-BIF has shown that also stressful life events can result in PTSD symptoms (Rouleaux et al., 2025). Therefore, the TS-ID may also be considered following such events. Finally, given that the TS-ID and the DITS-ID are currently the only measuring instruments specifically developed for screening and classifying PTSD in adults with MID-BIF, it would be advisable to consider including these instruments when de current PTSD guidelines are updated. At present, the available guidelines do not include any assessment tool suitable for this population, and acknowledging these tools help professionals to better recognise and assess PTSD in adults with MID-BIF.

Building on this key finding, several suggestions can be given for future research. Like adults with MID-BIF, children with MID-BIF also have an increased risk of experiencing adverse life events compared with children without MID-BIF (e.g., Dion et al., 2018; McDonnell et al., 2019; Mevissen et al., 2016; Vervoort-Schel et al., 2021). However, no validated screening instrument for PTSD according to the DSM-5-TR is currently available for children with MID-BIF. Future research should adapt and evaluate trauma screeners for this group so that PTSD can be better recognised in children with MID-BIF. A second suggestion concerns examining whether the TS-ID is also suitable for use in research and clinical practice to evaluate the effectiveness of trauma-focused treatment. In Study 1 (Chapter 2), the reliability and validity of the TS-ID were established, but its sensitivity, that is its ability to detect meaningful change over time, has not yet been investigated. Because the TS-ID can be completed in a relatively short time (10 minutes) and uses a four-point response scale, it may be a practical instrument for monitoring change during or after trauma treatment. In Study 3 (Chapter 4) and several other ongoing intervention studies, the TS-ID is already being used for this purpose. However, systematic research into its sensitivity is needed to determine whether the TS-ID can reliably capture treatment-related changes in adults with MID-BIF.

Key finding 2: Brief intensive EMDR therapy with rotating therapists was effective in our group of adults with MID-BIF, PTSD and severe behavioural problems

In Study 3 (Chapter 4), twelve participants started brief intensive EMDR therapy with rotating therapists, of whom eleven completed the treatment. Those who completed treatment showed a significant reduction in PTSD symptoms and nine of them no longer met diagnostic criteria for PTSD immediately after treatment and at nine-week follow-up. No adverse events were reported, supporting the notion that brief intensive EMDR therapy for these individuals is safe. These findings align with those of other studies on intensive trauma-focused treatments in children and adolescents with MID-BIF (Ooms-Evers et al., 2021) and in families with MID-BIF (Mevissen et al., 2020b).

The low dropout rate observed in Study 3 (Chapter 4) is consistent with other research indicating that intensive trauma-focused treatments are associated with lower dropout rates than weekly trauma treatments (e.g., Gahnfelt et al., 2025; Hoppen et al., 2023). In the two studies that examined intensive trauma focused-treatment in individuals with MID-BIF, no participants discontinued treatment (Mevissen et al., 2020b; Ooms-Evers et al., 2021). A reason for the lower dropout rates in intensive trauma-focused treatments lies in their structure, which is established by condensing sessions into a short timeframe, minimising avoidance between sessions, maintaining therapeutic engagement, and allowing PTSD symptoms to decrease relatively quickly (Bongaerts et al., 2022; Thoresen et al., 2022; Van Woudenberg et al., 2018). Study 4 (Chapter 5), which explored three participants' experiences with brief intensive EMDR therapy, offered some support for this. Participants generally experienced the intensive format as positive and helpful for maintaining engagement and completing treatment. They described the high intensity as motivating and as contributing to a sense of focus and continuity. Even the participant who discontinued treatment early indicated that, if he were to receive EMDR therapy again, he would once again prefer an intensive format, believing this would allow him to make faster progress. His professional caregiver likewise believed that an intensive format suited him well, noting that he might have dropped out even sooner in a less intensive (weekly) format.

In the study on brief intensive EMDR therapy, participants received treatment from a team of six therapists who worked collaboratively and alternated sessions, a format which is known as rotating therapists. In Study 4 (Chapter 5), we examined how participants experienced this format. Two of the three participants were positive about working with different therapists, while one was neither positive nor negative. These findings are consistent with those from a study in individuals from the general population by Van Minnen et al. (2018), who found a general preference for treatment by a rotating team of therapists rather than by a single therapist. Although two out of three participants were positive about the rotating therapists format, this finding may seem somewhat at odds with the concept of therapeutic alliance. As described in the General Introduction (Chapter 1), research in psychotherapy and trauma treatment among the general population shows that therapeutic alliance is a key predictor of treatment outcomes (Baier et al., 2020; Flückiger et al., 2018; Horvath et al., 2011; Howard et al., 2022). Therapeutic alliance refers to a collaborative relationship between therapist and client, grounded in agreement about goals, consensus on tasks, and the development of a positive emotional bond (Bordin, 1979, 1994). Therapeutic alliance may be particularly important for individuals with MID-BIF and severe behavioural problems, as skills deficits and attachment difficulties can make it more challenging to build trust and agree on goals and tasks (Hamadi et al., 2021; Van Herwaarden et al., 2022).

Against this background, the use of rotating therapists may thus appear at odds. As said, two of the three participants were positive about working with different therapists, while one was neither positive nor negative. Several factors may have contributed to the positive experiences. All therapists were highly experienced in both EMDR therapy and working with individuals with MID-BIF and appeared to share a professional and supportive attitude, which was identified as a relevant adaptation in EMDR therapy for individuals with MID-BIF (Schipper-Eindhoven et al., 2024). Moreover, the brief intensive EMDR therapy followed a structured format using the child and adolescent EMDR protocol (De Roos et al., 2021), which is written in simplified language and explicitly states that clients cannot make mistakes. In addition, a case conceptualisation was developed together with the client, based on a list of traumatic and stressful events ordered by SUD score.

After each session, processed memories were checked off with the client, providing continuous insight into the progress of treatment and supporting a sense of safety, predictability, and involvement for individuals with MID-BIF. The EMDR therapy protocol and case conceptualisation made the treatment easily transferable between therapists. These elements likely facilitated agreement between client and therapist on treatment goals and tasks, aligning with key components of the therapeutic alliance, even though a strong emotional bond might not have been established.

Study 3 (Chapter 4) examined the effectiveness of brief intensive EMDR therapy in reducing PTSD symptoms and diagnostic status. In addition, changes in adaptive behaviour, behavioural problems, and the use of involuntary care were assessed as secondary outcomes. These outcomes were included to explore whether successful reduction in PTSD symptoms would translate into improvements in functioning in other areas. In Study 3 (Chapter 4), we hypothesised that if PTSD symptoms were effectively reduced, behavioural problems would decline, adaptive behaviour would improve, and the use of involuntary care would decrease. For adaptive behaviour, an individual goal was formulated for each participant, such as 'participant independently walks home from work'. Some participants showed small improvements in adaptive behaviour after brief intensive EMDR therapy, whereas others exhibited medium changes. Improvements were not systematic across participants, suggesting that improvements in adaptive behaviour do not automatically occur following an overall reduction in PTSD symptoms after trauma treatment.

Changes in adaptive behaviour may require interventions aimed at learning new skills and adapting the environment. Although a reduction in PTSD symptoms may enable a participant to walk home from work independently because avoidance symptoms have decreased, the continued involvement of professional caregivers, for example, accompanying the participant out of habit or caution, may have inadvertently prevented actual improvements in this adaptive skill. Although participants were supported by their regular caregivers between therapy sessions, the qualitative study in Study 4 (Chapter 5), which involved three participants from Study 3, indicated that caregiver involvement in the therapeutic process itself was limited.

Previous research indicates that consistent caregiver involvement is often essential for supporting the generalisation of therapeutic gains into everyday functioning (Farnsworth & Schröder, 2025). Limited engagement of caregivers in Study 3 (Chapter 4) may have reduced opportunities to translate therapeutic gains into observable improvements in adaptive behaviour in the clients' natural environment.

After brief intensive EMDR therapy, some participants showed small to moderate improvement in behavioural problems. However, when looking across all participants, no consistent pattern of decrease in behavioural problems emerged. The use of involuntary care measures also remained unchanged, which may be related to the fact that such measures are typically applied in response to severe behavioural problems (Hastings et al., 2013). Study 1 (Chapter 2) and other research (Mason-Roberts et al., 2018; McNally et al., 2021; Rittmansberger et al., 2020) show that PTSD and behavioural problems are associated in individuals with MID-BIF. However, relatively little is known about how these constructs are related and whether improvements in PTSD symptoms lead to changes in behavioural problems. Behavioural problems in individuals with MID-BIF are understood to be multifactorial, meaning that they arise from the interaction of individual, environmental and neurodevelopmental factors rather than from one of these factors alone. These factors include limited adaptive and communicative skills, exposure to stressful or chaotic environments, psychiatric comorbidity, and biological or neurological vulnerabilities (van den Akker et al., 2021). Although PTSD and behavioural problems co-occur, these broader influences mean that improvements in PTSD symptoms alone cannot be expected to produce a uniform decrease in behavioural problems across individuals with MID-BIF and behavioural problems. That behavioral problems are multifactorially determined may help explain why some participants showed small to moderate improvements, and no consistent pattern of decrease in behavioural problems emerged across participants in Study 3 (Chapter 4).

When interpreting the second key finding, several limitations should be considered. First, although the randomised non-concurrent multiple baseline design used in Study 3 (Chapter 4) provides valuable insights

into individual change in PTSD symptoms, it does not indicate which subgroups, for example those differing in the type and number of traumatic memories, within the MID-BIF population may benefit more or less from intensive EMDR therapy. In addition, both Study 3 and Study 4 (Chapter 4 and 5) involved adults with MID-BIF living in supported housing within one Dutch ID care organisation, and the participants in Study 4 formed a small and selective group of young adult males treated within the same institutional context. These factors limit the generalisability of the findings to other settings or individuals.

This key finding supports offering EMDR therapy in an intensive format for treating PTSD in adults with MID-BIF and severe behavioural problems. An intensive approach may enhance treatment adherence and maintain motivation. The positive experiences with multiple therapists further suggest that working with a rotating team of therapists is feasible for individuals with MID-BIF and behavioural problems. As this is, to our knowledge, the first study to examine intensive EMDR therapy in adults with MID-BIF, further research is required to replicate and extend these findings. Future research should include more diverse groups, such as individuals from different types of care settings, to examine the generalisability of brief intensive EMDR therapy for individuals with MID-BIF. Furthermore, a randomised controlled trial (RCT) comparing weekly EMDR therapy with intensive EMDR therapy could provide valuable insight into the relative benefits of both treatment formats and allow for the identification of potential moderators, such as the number and type of traumatic events, living environment, or the presence of severe behavioural problems, that may influence treatment responsiveness, while also improving external validity. The absence of improvements in adaptive functioning despite a reduction in PTSD symptoms highlights the need for research examining the factors that determine whether treatment effects translate into changes in everyday functioning. More research is needed to identify which forms of caregiver involvement, environmental adjustments, or additional interventions could support the generalisation of treatment effects and facilitate improvements in adaptive behaviour following trauma-focused treatment.

Conclusion

This dissertation aimed to improve the identification, diagnostic assessment, and treatment of PTSD in adults with MID-BIF. The case of Hilda, introduced in the General introduction (Chapter 1), illustrated how PTSD can remain unnoticed and how weekly trauma-focused treatment may be difficult to sustain for individuals with MID-BIF. Taken together, the studies in this dissertation show that several of these barriers can be addressed. The findings indicate that PTSD can be recognised more systematically in adults with MID-BIF by using instruments that are adapted and validated for these individuals, such as the DITS-ID and the TS-ID. In addition, brief intensive EMDR therapy with rotating therapists was effective in reducing PTSD symptoms in our group of adults with MID-BIF, PTSD, and severe behavioural problems. However, consistent with the pattern observed in Study 3, these treatment effects were largely confined to PTSD symptoms and did not consistently extend to improvements in behavioural problems or adaptive functioning. For individuals like Hilda, this combination of earlier screening, structured diagnostic assessment, and accessible intensive trauma-focused treatment may offer a more timely, tailored, and realistic pathway to care than is currently the case.

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Appendices

Nederlandse samenvatting (Dutch summary)

Hoofdstuk 1 schetst de context van dit proefschrift. Aan de hand van de casus van Hilda - een vrouw met een licht verstandelijke beperking - wordt duidelijk hoe PTSS jarenlang onopgemerkt kan blijven. Hilda is als twaalfjarig meisje uit huis geplaatst en woont inmiddels, als 32-jarige, alweer enige tijd in haar huidige woonlocatie met 24-uurszorg. Wanneer Hilda plotseling ander gedrag laat zien, vergelijkbaar met de verandering die op haar twaalfde in het dossier staat beschreven, besluiten haar begeleiders een diagnostisch interview naar trauma- en stressorgerelateerde stoornissen (de DITS-LVB) af te nemen. Tijdens dit interview vertelt Hilda dat zij herhaaldelijk seksueel is misbruikt. Op basis van het diagnostisch onderzoek wordt de classificatie PTSS gesteld.

Om de context van dit proefschrift te begrijpen, is het belangrijk kort stil te staan bij wat post-traumatische stressstoornis (PTSS) is en wie we bedoelen met mensen met een LVB. Volgens de DSM-5-TR is PTSS een psychische stoornis die ontstaat na blootstelling aan een potentieel traumatische gebeurtenis (criterium A). Een gebeurtenis wordt als potentieel traumatisch beschouwd als sprake is van feitelijke of dreigende dood, ernstige verwonding of seksueel geweld. Iemand maakt dit zelf mee, is er getuige van, hoort dat het een naaste is overkomen of is herhaaldelijk blootgesteld aan aversieve details ervan. PTSS gaat gepaard met een reeks symptomen, waaronder intrusieve symptomen (cluster B), vermijdingssymptomen (cluster C), negatieve veranderingen in cognities en stemming (cluster D) en veranderingen in arousal en reactiviteit (cluster E). Deze symptomen veroorzaken significante lijdensdruk of beperkingen in het functioneren, houden langer dan één maand aan en zijn niet het gevolg van middelengebruik, een somatische aandoening of een andere psychische stoornis.

Een verstandelijke beperking wordt volgens de DSM-5-TR gekenmerkt door beperkingen in het verstandelijke en adaptief functioneren, die tot uiting komen in de sociale, praktische en conceptuele domeinen en beginnen tijdens de ontwikkelingsperiode. In zowel de klinische praktijk als in wetenschappelijk onderzoek worden IQ-grenzen van 50 tot 70 gebruikt om een licht verstandelijke beperking af te bakenen. Voor zwakbegaafdheid worden doorgaans IQ-scores tussen 70 en 85 aangehouden. Hoewel

zwakbegaafdheid in de DSM-5-TR niet onder een verstandelijke beperking valt maar is opgenomen als een V-code, is het in Nederland gebruikelijk om mensen met een licht verstandelijke beperking en mensen met zwakbegaafdheid samen te brengen onder de noemer 'LVB'.

Volwassenen met een LVB worden vaker blootgesteld aan potentieel traumatische gebeurtenissen dan mensen uit de algemene bevolking. Zij hebben bovendien minder cognitieve, communicatieve en sociale vaardigheden om de gevolgen van dergelijke gebeurtenissen op een natuurlijke manier te verwerken. Dat vergroot het risico op het ontwikkelen van PTSS. Ondanks het verhoogde risico wordt PTSS bij volwassenen met een LVB vaak niet herkend. Dit is problematisch omdat PTSS een grote negatieve invloed heeft op het dagelijks functioneren. Binnen de groep volwassenen met een LVB is EMDR-therapie momenteel de meest onderzochte behandeling voor PTSS. Het aantal studies blijft echter beperkt, vooral bij volwassenen met een LVB en ernstige gedragsproblemen. Hierdoor bestaat in de praktijk onzekerheid over de veiligheid, effectiviteit en haalbaarheid van behandeling met EMDR-therapie bij deze doelgroep.

Dit proefschrift bestaat uit vier studies die samen bijdragen aan het verbeteren van de herkenning, diagnostiek en behandeling van PTSS bij volwassenen met een LVB. Het eerste doel was het verder onderzoeken van de psychometrische eigenschappen van het Diagnostisch Interview Trauma en Stressoren – LVB voor volwassenen (DITS-LVB; hoofdstuk 2). Het tweede doel was het ontwikkelen en evalueren van een screener voor PTSS bij volwassenen met een LVB (hoofdstuk 3). Het derde doel betrof het onderzoeken van de effectiviteit van kortdurende intensieve EMDR-therapie bij volwassenen met een LVB, PTSS en ernstige gedragsproblemen (hoofdstuk 4). Het vierde doel was het verkennen van de ervaringen van drie volwassenen met een LVB die deze behandeling hebben ontvangen (hoofdstuk 5).

Hoofdstuk 2 beschrijft een onderzoek naar de psychometrische kenmerken van de DITS-LVB (versie voor volwassenen). De DITS-LVB is ontwikkeld om PTSS bij volwassenen met een LVB te classificeren. In deze studie werd het interview afgenomen bij 97 volwassenen met een LVB. Ter beoordeling van

de constructvaliditeit vulden deelnemers de Nederlandse versies van de Brief Symptom Inventory-18 (BSI-18; angst-, depressie- en stressklachten) en de Impact of Event Scale – ID (IES-ID; traumagerelateerde klachten) in. Daarnaast vulden naastbetrokkenen (familieleden of begeleiders) de Angst-, Depressie- en Stemmingsschaal (ADESS; angst, depressie en stemmingsproblemen) en de Inventarisatie van Gedragsproblemen (IGP; frequentie en ernst van probleemgedrag) in. Voor het vaststellen van de interbeoordelaarsbetrouwbaarheid werden 35 video-opnamen van het DITS-LVB-interview willekeurig geselecteerd. Een tweede, onafhankelijke, beoordelaar scoorde alle items van de gebeurtenissen- en symptoomsectie van de DITS-LVB en beoordeelde of een gebeurtenis voldeed aan het A-criterium en of er sprake was van een PTSS-classificatie. De resultaten laten zien dat de interbeoordelaarsbetrouwbaarheid goed tot uitstekend is voor de PTSS-symptomen, de beoordeling van potentieel traumatische gebeurtenissen (criterium A), en de PTSS-classificatie. Ook de constructvaliditeit van de DITS-LVB bleek goed: er werd een positieve samenhang gevonden tussen PTSS-symptoomscores en een PTSS-classificatie en de scores op de BSI-18, IES-ID en ADESS, terwijl alleen de PTSS-symptoomscores positief samenhingen met de ernst van gedragsproblemen op de IGP. Opvallend was dat 58% van de deelnemers voldeed aan de DSM-5-TR criteria voor PTSS volgens de DITS-LVB. Voorafgaand aan deelname aan het onderzoek was dit bij slechts 7% geregistreerd in het elektronisch cliëntdossier.

Hoofdstuk 3 beschrijft de ontwikkeling van de zelfrapportage- en proxyversie van de Trauma Screener – LVB (TS-LVB) voor volwassenen. Daarnaast wordt het onderzoek naar de psychometrische kenmerken van de TS-LVB beschreven. De TS-LVB werd ontwikkeld door de Kinder en Jeugd Trauma Screener aan te passen voor volwassenen met een LVB. Aanpassingen waren gebaseerd op klinische expertise van de onderzoeksgroep en wetenschappelijke literatuur, en verder aangescherpt via focusgroepen met volwassenen met een LVB, hun ouders, begeleiders en gedragswetenschappers die ervaring hadden met PTSS bij mensen met een LVB. Daarna werden de zelfrapportageversie en de proxyversie van de TS-LVB in een pilotfase afgenomen bij volwassenen met een LVB en hun begeleiders en ouders. Hierbij werd de begrijpelijkheid en toepasbaarheid

van beide versies beoordeeld. Op basis van de pilotfase werden geen verdere aanpassingen gemaakt.

Vervolgens werden in een grotere steekproef de psychometrische kenmerken van de TS-LVB onderzocht. De zelfrapportageversie van de TS-LVB werd ingevuld door 97 volwassenen met een LVB, en de proxyversie door 92 naastbetrokkenen (familieleden of begeleiders) van volwassenen met een LVB. De uitkomsten werden vergeleken met een PTSS-classificatie als vastgesteld met de DITS-LVB (versie voor volwassenen). Resultaten lieten zien dat de zelfrapportageversie van de TS-LVB een uitstekende interne consistentie had en een zeer goede validiteit voor het onderscheiden van volwassenen met en zonder PTSS. Een afkapscore van 18 bleek optimaal voor het voorspellen van een PTSS-classificatie. De proxyversie van de TS-LVB bleek wel intern consistent, maar kon in deze steekproef PTSS niet valide onderscheiden. Op basis van de resultaten kan worden geconcludeerd dat de zelfrapportageversie van de TS-LVB een betrouwbaar en valide instrument is voor het screenen van PTSS bij volwassenen met een LVB. De beperkte validiteit van de proxyversie wijst erop dat begeleiders onvoldoende zicht hebben op PTSS bij volwassenen met een LVB. Hierdoor blijft zelfrapportageversie van de TS-LVB essentieel voor het signaleren van PTSS in deze doelgroep.

Hoofdstuk 4 beschrijft het onderzoek naar de veiligheid en effectiviteit van kortdurende intensieve EMDR-therapie bij volwassenen met een LVB, PTSS en ernstige gedragsproblemen. Twaalf volwassenen met een LVB, PTSS en ernstige gedragsproblemen namen deel aan dit onderzoek. Zij kregen tweemaal per dag (in de ochtend en middag), vier dagen per week, gedurende twee weken EMDR-therapie. De therapie werd gegeven door een team van zes verschillende (roterende) therapeuten. Elf deelnemers rondden de behandeling af, één deelnemer stopte voortijdig. Primaire uitkomstmaten waren PTSS-symptomen, PTSS-diagnose en de veiligheid van de behandeling. Secundaire uitkomstmaten waren gedragsproblemen, adaptieve vaardigheden en het gebruik van vrijheidsbeperkende maatregelen. Er vonden metingen plaats vóór, tijdens en na de behandeling en bij follow-up, zes weken, negen weken en vier maanden na de behandeling. PTSS-symptomen namen na de kortdurende

intensieve EMDR-therapie bij alle volwassenen af en negen van de elf volwassenen voldeden na afronding van de behandeling en bij de laatste follow-up meting niet meer aan de DSM-5-TR criteria voor PTSS. Op basis van het uitblijven van geregistreerde veiligheid gerelateerde gebeurtenissen werd de behandeling als veilig beoordeeld. Er werden geen veranderingen gevonden in gedragsproblemen, adaptieve vaardigheden en het gebruik van vrijheidsbeperkende maatregelen.

Hoofdstuk 5 beschrijft een kwalitatief onderzoek naar de ervaringen van drie volwassenen met een LVB, PTSS en ernstige gedragsproblemen met de kortdurende intensieve EMDR-therapie met zes verschillende (roterende) therapeuten. Drie volwassenen die ook deelnamen aan de studie beschreven in hoofdstuk 4 werden vóór en na de behandeling geïnterviewd met behulp van semigestructureerde interviews. Hun begeleiders werden eveneens vóór en na de behandeling geïnterviewd, terwijl de EMDR-therapeuten alleen na afloop van de behandeling werden geïnterviewd. Daarnaast werden notities die tijdens het onderzoek waren gemaakt gebruikt om de context van de behandeling te verduidelijken. Deelnemers gingen de behandeling in met hoge verwachtingen over de mate waarin EMDR-therapie hun dagelijks leven zou kunnen veranderen. Eén deelnemer stopte vroegtijdig met de therapie, terwijl twee deelnemers de volledige behandeling afrondden. Het intensieve format van het programma werd door alle deelnemers als zwaar ervaren, maar alle deelnemers beschreven deze opzet tegelijkertijd als ondersteunend. De intensiteit zorgde voor continuïteit en hielp hen betrokken te blijven bij de behandeling. Het werken met roterende therapeuten werd door twee deelnemers als positief ervaren; de derde deelnemer had geen positieve of negatieve ervaring. Uit de interviews blijkt dat de betrokkenheid van het professionele netwerk tijdens de therapie beperkt was.

Hoofdstuk 6 bevat de algemene discussie, waarin twee kernbevindingen van dit proefschrift worden beschreven. Een eerste kernbevinding is dat PTSS bij volwassenen met een LVB beter kan worden herkend wanneer gebruik wordt gemaakt van de TS-LVB. De tweede kernbevinding is dat kortdurende intensieve EMDR-therapie met roterende therapeuten in onderhavig onderzoek effectief was voor de behandeling van PTSS bij de

deelnemers met een LVB, PTSS en ernstige gedragsproblemen. Samen laten de studies in dit proefschrift zien dat PTSS bij volwassenen met een LVB beter kan worden herkend en effectief behandeld.

De bevindingen in dit proefschrift geven aanleiding tot vervolgonderzoek naar een aantal onderwerpen. Allereerst wordt geadviseerd om de sensitiviteit van de TS-LVB voor het meten van verandering in PTSS-symptomen over tijd te onderzoeken, om vast te stellen of het instrument geschikt is voor het monitoren en evalueren van effecten van traumabehandeling. Daarnaast wordt geadviseerd om de psychometrische kenmerken van de TS-LVB in meer diverse populaties en zorgsettingen te onderzoeken, zodat de generaliseerbaarheid van de conclusies kan worden vergroot. Tevens wordt geadviseerd om een traumascreener te ontwikkelen en valideren voor kinderen en adolescenten met een LVB. Verder wordt aanbevolen om in een gerandomiseerde gecontroleerde studie intensieve EMDR-therapie te vergelijken met EMDR-therapie die wordt aangeboden in een wekelijks en minder intensieve opzet, om de relatieve effectiviteit van beide behandelvormen vast te stellen. Tot slot wordt geadviseerd om te onderzoeken in hoeverre en onder welke voorwaarden een afname van PTSS-symptomen leidt tot veranderingen in adaptief functioneren en gedragsproblemen, met specifieke aandacht voor de rol van begeleiders en omgevingsfactoren.

Dit proefschrift laat zien dat PTSS bij volwassenen met een LVB beter kan worden herkend met specifiek aangepaste en gevalideerde instrumenten, zoals de DITS-LVB en de TS-LVB. In dit onderzoek namen na kortdurende intensieve EMDR-therapie met roterende therapeuten de PTSS-symptomen af en voldeed een groot deel van de deelnemers na de behandeling en bij follow-up niet meer aan de DSM-5-TR-criteria voor PTSS. De casus van Hilda laat zien hoe PTSS bij volwassenen met een LVB jarenlang onopgemerkt kan blijven en hoe reguliere, wekelijkse traumabehandeling niet altijd haalbaar is. De bevindingen in dit proefschrift tonen dat vroegtijdige signalering, gestructureerde diagnostiek en intensieve traumagerichte behandeling in samenhang kunnen bijdragen aan een meer tijdige en passende behandeling.

Research data management and privacy statement

Ethical statement and privacy statement

This research was conducted in compliance with the General Data Protection Regulation (GDPR) and all applicable laws and ethical guidelines. The Medical Research Ethics Committee of the East Netherlands (reference number: 2020-6967- NL75909.091.20) has approved to conduct alle studies.

The privacy of participants of all studies has been warranted using random individual participant IDs. Encrypted pseudonymization key files linking these random participant IDs with identifiable personal information were stored on a secure network drive of Radboud University and were only accessible to Robert Didden and Anne Versluis. The key files for all studies were destroyed within one month after data processing was completed. Video recordings (study 1, Chapter 2) were deleted after the second rater had scored the interviews. Audio recordings (study 4, Chapter 5) were deleted after a transcript had been made. Consent forms for all studies and all research data resulting from this dissertation, are stored on a secure network drive of Radboud University.

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Data management and availability

Radboud University and the Behavioural Science Institute (BSI) have set strict conditions for the management of research data. Research data management was conducted according to the FAIR principles. All research data resulting from this dissertation were handled in accordance with the university's research data management policy (https://www.ru.nl/rdm/) and the BSI's research data management protocol (https://www.radboudnet.nl/bsi/rdm). Data are not publicly available due to privacy of research participants. Data are available on reasonable request from the corresponding author.

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Ik wil Louise Poot van 'Paspartoe', atelier van 's Heeren Loo in Noordwijk, bedanken voor het ontwerp van de cover van dit proefschrift. Met dit beeld wist zij op een treffende manier te verbeelden waar dit proefschrift over gaat. Over haar schilderij "Vrij zijn", schreef Louise: "Dit schilderij gaat over het achterlaten van trauma's en het vrij zijn daarvan. De vogels in het haar staan symbool voor het verjagen van de trauma's. Daardoor is zij echt vrij van alles."

Ik wil mijn collega's van de academische werkplaats Viveon bedanken. Dank voor het samen nadenken over onderzoek, elkaar inspireren en scherp houden, en voor het plezier dat we met elkaar hadden buiten het onderzoek om.

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List of publications

Peer-reviewed publications

Publications related to this dissertation

Versluis, A., de Jongh, A., Mevissen, L., Schuengel, C., Bakkum, L., & Didden, R. (2025). Brief intensive EMDR therapy for PTSD in adults with mild intellectual disability or borderline intellectual functioning and behavioural problems: a multiple baseline design study. *European Journal of Psychotraumatology, 16*(1), 2495642. https://doi.org/10.1080/20008066.2025.2495642

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Versluis, A., Schuengel, C., Mevissen, L., de Jongh, A., & Didden, R. (2025). Development and evaluation of the Trauma Screener-Intellectual Disability: a post-traumatic stress disorder screening tool for adults with mild intellectual disability or borderline intellectual functioning. *Journal of Intellectual Disability Research, 69*(2), 127–136. https://doi.org/10.1111/jir.13198

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Other publications

Bierman, T., Versluis, A., Korzilius, H., & Didden, R. (2026). Feasibility of intensive eye movement desensitization and reprocessing therapy for adults with mild intellectual disability or borderline intellectual functioning and posttraumatic stress disorder in a tertiary mental health care setting: A nonconcurrent single-case design study.

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* These authors contributed equally to this work.

Hoogstad, A., Peters-Scheffer, N., Rouleaux, M. Mevissen, L., Versluis, A., & Didden, R. (2025) Screening and Assessment of Posttraumatic Stress Disorder in Individuals with Intellectual Disabilities: A Scoping Review. *Advances in Neurodevelopmental Disorders, 9*, 465-478. https://doi.org/10.1007/s41252-025-00441-5

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Jak, H., & Louwers, M. (2025). Beter zicht op trauma bij mensen met een licht verstandelijke beperking. *VGCt Magazine*, (3), 7–9.

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Curriculum Vitae

Anne studeerde van 2001 tot en met 2005 pedagogiek aan de Noordelijke Hogeschool Leeuwarden. Na haar afstuderen vertrok zij voor enkele maanden naar Kenia, waar zij werkte bij een woonvoorziening voor kinderen met een lichamelijke beperking. Terug in Nederland ging zij aan het werk bij Heideheuvel in Hilversum, waar zij werkte op kinderafdelingen voor kinderen met chronische gezondheidsproblemen. Van 2007 tot en met 2009 studeerde zij orthopedagogiek aan de Vrije Universiteit in Amsterdam. Tijdens deze studie werkte zij als begeleider op de opnameafdeling voor kinderen en jongeren (Fornhese) van GGZ Centraal in Amersfoort. In 2009 startte zij als orthopedagoog bij orthopedagogisch-didactisch centrum Het Lumeijn. Daar was zij verantwoordelijk voor orthopedagogische diagnostiek en advisering van leerlingen met leer- en gedragsproblemen op middelbare scholen in Zwolle en omgeving.

Sinds 2012 werkt Anne als gedragswetenschapper bij 's Heeren Loo in Ermelo. Tot en met 2020 vervulde zij daar de rol van regiebehandelaar voor mensen met een verstandelijke beperking en moeilijk verstaanbaar gedrag. In dezelfde periode volgde zij de opleiding tot gezondheidszorgpsycholoog (2013–2016) en rondde zij in 2016 de basisopleiding EMDR (kind en jeugd) af. In deze jaren ontstond haar belangstelling voor trauma en PTSS, met name bij mensen met een verstandelijke beperking en moeilijk verstaanbaar gedrag. Zij volgde in 2018 de vervolgopleiding EMDR (kind en jeugd) en werd in 2020 geregistreerd als EMDR-therapeut VEN®.

Tijdens haar studie orthopedagogiek was haar interesse in wetenschappelijk onderzoek gewekt; een belangstelling die zij naast haar klinische werk bleef behouden. Van 2018 tot en met 2019 nam zij deel aan de masterclass *Wetenschappelijk Onderzoek in de Gehandicaptenzorg* van de Vereniging Gehandicaptenzorg Nederland. In deze periode kwamen haar interesse in mensen met een verstandelijke beperking en moeilijk verstaanbaar gedrag, haar focus op trauma en PTSS en haar wetenschappelijke belangstelling samen. Binnen deze masterclass schreef Anne een onderzoeksvoorstel, dat de eerste aanzet vormde voor het promotieonderzoek dat zij in 2020 startte bij het Behavioural Science Institute van de Radboud Universiteit. De resultaten van dit onderzoek staan beschreven in dit proefschrift.

Tijdens haar promotieonderzoek, en ook daarna, bleef Anne werkzaam als EMDR-therapeut VEN® bij 's Heeren Loo. Als programmamanager werkt zij aan de ontwikkeling van een academisch centrum voor psychotrauma. Bij de academische werkplaats Viveon is zij betrokken bij het uitvoeren en initiëren van vervolgonderzoek. Tevens is zij bestuurslid van de Vereniging EMDR Nederland.

Trauma Screener – Licht Verstandelijke Beperking (TS-LVB) voor volwassenen

De cover van dit proefschrift is geschilderd door Louise Poot. Zij werkt bij 'Paspartoe' atelier van 's Heeren Loo in Noordwijk. Over haar schilderij "Vrij zijn", schreef Louise: "*Dit schilderij gaat over het achterlaten van trauma's en het vrij zijn daarvan. De vogels in het haar staan symbool voor het verjagen van de trauma's. Daardoor is zij echt vrij van alles.*"

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