



Dropout in the treatment of PTSD: a systematic review and meta-analysis

Master of Science Thesis

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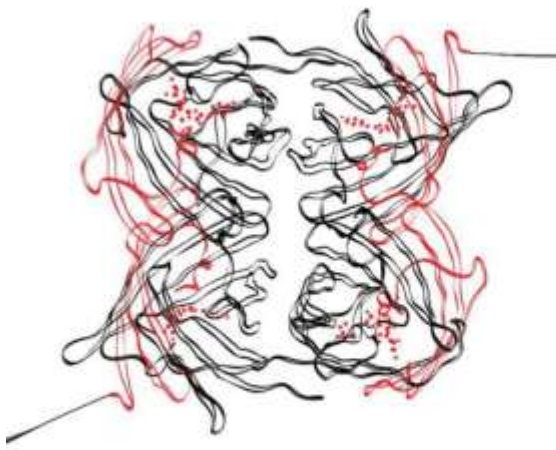
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Preface

Before you lies the master thesis ‘Dropout in the treatment of PTSD: a systematic review and meta-analysis’. I have written this master thesis as a final part of the MSc programme Psychology, with a specialization in Positive Psychology and Technology. I was engaged in writing this master thesis from October 2018 through February 2019.

I had a great time and learned a lot during the master. I have not only grown in terms of theoretical knowledge and academic skills, but I have also been able to develop personally. Therefore, I want to thank all teachers and professors for sharing their knowledge during the courses. Furthermore, I want to thank Mediant for allowing me to put my gained knowledge and skills into practice during the clinical internship.

I want to thank my supervisors, dr. Marion Sommers-Spijkerman and prof.dr. Gerben Westerhof, for their guidance and feedback. I also want to thank Sabien Horevoets for the guidance and support she gave me during this process. Finally, I want to thank Justin for his support and encouragement.

I hope you enjoy your reading.

Linda Reinders

Enschede, February 28, 2019

Abstract

Background. In clinical practice, a high rate of dropout in the treatment of posttraumatic stress disorder (PTSD) has been a concern for a long time because of its negative impact on patients, therapists and healthcare institutions. This systematic review and meta-analysis offers an overview of the scope of the problem of dropout in the treatment of patients with PTSD. This study has four major objectives: (a) to determine the dropout rate in the treatment of PTSD; (b) to assess whether a significant difference exists in dropout rate between Eye Movement Desensitization and Reprocessing (EMDR) and Prolonged Exposure (PE); (c) to determine the underlying reasons for dropout; and (d) to determine predictors of dropout. Understanding which reasons and predictors may have an impact on treatment adherence can provide insight into how dropout in the treatment of PTSD can be reduced.

Method. A systematic review was conducted using the electronic databases SCOPUS and PsycINFO, including English peer-reviewed intervention studies published between 2000 and December 2018. A meta-analysis was conducted to estimate the pooled dropout rate and for the assessment of a significant difference in dropout rate between EMDR and PE.

Results. Twenty studies were included ($n = 1789$) with a total of twenty-five reported dropout rates. The meta-analysis showed an average pooled dropout rate of 31,97%. An independent-samples t-test showed a significant difference in dropout rates between EMDR and PE. However, two studies contradicted that there is a significant difference in dropout rate between EMDR and PE (Van den Berg et al., 2015; Power et al., 2002). Both non-treatment-related reasons and treatment-related reasons for dropout were found. Predictive factors for dropout in patients with PTSD can be divided into demographic variables, trauma characteristics, symptom-related factors, personality characteristics, and other predictive factors. Contradictory evidence has been found for multiple predictive factors for treatment dropout.

Discussion. This review demonstrated that approximately one-third of patients with PTSD quit treatment prematurely. It can be cautiously concluded that EMDR is favored when it comes to dropout. More research is needed to confirm this. It seems that catastrophic cognitions, anxiety and a tendency to avoid are important predictors for dropout. Apparently, for many patients it is difficult to be confronted with the trauma.

Keywords. PTSD, dropout, EMDR, PE, review, meta-analysis

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Introduction

This systematic review and meta-analysis focuses on dropout in the treatment of posttraumatic stress disorder (PTSD). This study is commissioned by the Center for Psychotrauma, a specialist treatment center from a large mental health institution in the Netherlands. The Center for Psychotrauma is specialized in the treatment of patients with PTSD. Within the Center for Psychotrauma, a high rate of dropout in treatment has been a concern for a long time. The Center for Psychotrauma aims to gain more insight into the underlying reasons and predictive factors of dropout, in order to be able to reduce dropout in practice.

The problem of dropout from psychological treatment is not unique for PTSD but widespread throughout the mental health sector (Sharf, 2009). Nonetheless, there is no consensus on the definition of dropout in existing literature (Bados, Balaguer & Saldaña, 2007). It is important to be aware of the variation in operational definitions of dropout because this can influence the research findings, as was shown by a meta-analysis of Wierzbicki and Pekarik (1993). Wierzbicki and Pekarik (1993) found that the rate of dropout was significantly correlated with the way in which investigators defined dropout. According to the authors (1993), the judgement of the therapist on whether a patient is ready to quit treatment may be the best method of defining dropout. In this current study, dropout is defined as the decision of a patient to quit treatment before the end of the protocol or before the therapist considers this decision to be appropriate (Meulenbeek, Seeger & Peter, 2015). Thus, dropout involves the termination of treatment without being mutually agreed with the therapist.

In accordance with this definition, the World Health Organization (WHO) (Wells et al., 2013) has conducted research among adults in 24 countries to explore mental health treatment dropout in a wide range of outpatient mental health services, such as care from a psychiatrist or other mental health specialty (psychologist or social worker). Overall, dropout was 31.7%. Furthermore, the research showed that 21.3% of the patients who visited a psychiatrist and 24.1% of the patients who visited a psychologist or social worker quit the treatment prematurely. About 20% of the dropout already occurred before the 5th appointment (Wells et al., 2013). The WHO concluded that dropout should be reduced to ensure effective treatment.

Dropout negatively impacts patients, therapists and healthcare institutions. Patients who complete the treatment until treatment goals are achieved have a better treatment outcome than patients who drop out (Klein, Stone, Hicks & Pritchard, 2003). Because of this worse treatment outcome, patients who drop out of treatment may return to treatment repeatedly. This

results in longer waiting lists. Furthermore, treatment dropout has a negative effect on the morale of therapists as it evokes a sense of failure in therapists (Klein et al., 2003; Pekarik, 1985). Lastly, dropout increases financial pressure (Klein et al., 2003). When patients do not show up for a scheduled appointment, these no-shows are usually not charged. In addition, no-shows leave empty appointment slots in the overcrowded agendas of the therapists, so precious clinical staff time is wasted (Pekarik, 1985).

This study focuses on dropout in the treatment of patients with PTSD. PTSD is a psychiatric disorder that can occur in people who have experienced or witnessed a traumatic experience, such as a natural disaster, serious accident, war, rape or other violence. The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; *DSM-5*; American Psychiatric Association, 2013) mentions a number of criteria for the diagnosis of PTSD. Patients with PTSD suffer from intrusive symptoms (e.g. nightmares, flashbacks, or recurrent and painful memories of the event), avoidance of trauma-related stimuli after the trauma (e.g. trauma-related thoughts, feelings, or external stimuli), negative alterations in cognition and mood (e.g. negative affect, feeling isolated, or feelings of guilt), and alterations in arousal and reactivity (e.g. irritability, hypervigilance, heightened startle reaction, difficulty concentrating, or difficulty sleeping). Between 2004 and 2005, the lifetime prevalence of PTSD in the Dutch adult population was approximately 7,4% (de Vries & Olff, 2009). Since 2009, the number of people registered with PTSD in general practice increased strongly by 380% in men and 277% in women (Hakstege & Klaassens, n.d.). This strong increase could be explained by the fact that people may seek professional help more quickly, or because PTSD is better recognized in mental health care, or PTSD is more accurately registered by general practitioners (Weehuizen, 2008). In 2013, 90.660 patients were treated for PTSD in the Netherlands (Hakstege & Klaassens, n.d.).

Trauma-focused CBT, better known as Prolonged Exposure (PE), and Eye Movement Desensitization and Reprocessing (EMDR) are the preferred treatments for PTSD, as stated in the Dutch multidisciplinary guidelines for the treatment of PTSD (Balkom et al., 2013). In PE, the patient experiences the traumatic event again so that processing can take place. This is called imaginal exposure (IE). The emphasis is on repeated and long-lasting reliving, in which the patient has to listen to audio recordings of the treatment sessions every day. IE is often supplemented with exposure-in-vivo (i.e., repeated exposure to situations that are avoided in daily life). EMDR is a protocol-based procedure for the treatment of PTSD. In EMDR, a traumatic memory is 'set', after which a distracting stimulus is introduced (often with the aid of

moving fingers or a moving light). Through a process of spontaneous associations, the emotional load of the traumatic memory is reduced (Balkom et al., 2013). The effectiveness of both PE and EMDR for the treatment of PTSD in adults has been well-established (e.g. Cusack et al., 2016). In a study by van der Kolk et al. (2007), EMDR seems particularly effective in treating single traumas that have been developed during adulthood, while the effectiveness of childhood-onset traumas seems to be lower. PE seems effective in treating both single and multiple traumas (McDonagh et al., 2005; Clarke, Rizvi & Resick, 2008). Anyway, research showed that attendance of treatment sessions is the most important predictor for treatment outcome in PTSD (Tarrier, Sommerfield, Pilgrim & Faragher, 2000). Since the effectiveness of both treatments has been well-established and attendance at treatment sessions is the most important predictor for treatment outcome, it can be useful to determine whether there is a significant difference in dropout rate between EMDR and PE. If there is a significant difference in dropout rate between EMDR and PE, this may contribute to making statements about which treatment is preferable. In fact, it is not surprising to expect that there could be a difference in dropout rate between EMDR and PE, as the working mechanisms of both treatments differ. In EMDR, PTSD is treated through a process of information-processing. In contrast, PE treats PTSD through prolonged exposure to memories from the traumatic event(s). However, patients with PTSD tend to avoid exposure to painful memories, thoughts or feelings reminiscent of the traumatic event(s) (*DSM-5*; American Psychiatric Association, 2013). Since patients are more intensively exposed to the traumatic event(s) in PE than in EMDR, it might be possible that patients be more likely to quit treatment prematurely in PE.

When patients with PTSD quit treatment prematurely, various negative consequences may occur. PTSD can extinguish on its own, but the chance of it becomes smaller as the symptoms last longer (van Emmerik & Berrety, 2007). If PTSD remains untreated, more social, emotional or physical problems may arise. When patients with PTSD drop out of treatment, they have a greater risk of developing physical or psychological disorders such as cardiovascular diseases, chronic pain conditions, and substance use disorders (Sareen et al., 2007; Najavits, Weiss & Shaw, 1997), they are likely to experience a lower quality of life (Sareen et al., 2007), and are at greater risk of unemployment (Savoca & Rosenheck, 2000). Furthermore, they are more likely to experience anger management issues, which might result in abuse or public violence (Najavits, Sonn, Walsh & Weiss, 2004). Finally, people with PTSD are at greater risk to attempt suicide (McKinney, Hirsch & Britton, 2017; Kessler, 2000; Sareen et al., 2007).

In view of these negative consequences if PTSD remains untreated, it is important to ensure that patients with PTSD finish their treatment. Understanding which reasons and predictors may have a high impact on treatment adherence can provide insight into how dropout in the treatment of PTSD can be reduced. Reasons to drop out from treatment may stem from difficulties unrelated to treatment (e.g., no time for treatment), dissatisfaction with the treatment (e.g., aversion of exposure to painful memories), or the opinion of patients that the symptoms are sufficiently decreased without mutual agreement from the therapist (Dinger & Renk, 2002). Finally, predictive patient factors could entail demographic variables (e.g. sex, age, level of education) or the presence of comorbid disorders (e.g., substance use disorders or personality disorders) (Najavits, 2015). Knowledge about predictive patient factors makes it possible to estimate the probability of dropout in a patient prior to the treatment.

Goal of the study

The above literature illustrates that dropout is a widespread problem in mental health care with multiple negative consequences. In the Netherlands, a large number of patients is treated for PTSD (Hakstege & Klaassens, n.d.) and research shows that attendance of treatment sessions is the most important predictor of treatment outcome in PTSD (Tarrier et al., 2000), making it important to explore the scope of the problem of dropout in the treatment of patients with PTSD.

According to the author's knowledge, only one systematic review of dropout in the treatment of PTSD exists. This study was focused on Iraq and Afghanistan combat veterans (Goetter et al., 2016) and was only focused on dropout rate. In that study, the overall pooled dropout rate was 36%, 95% CI [26.20, 43.90]. In view of the impact of dropout on the patient and the therapist, it is important to make a more comprehensive systematic inventory of existing literature about dropout among patients with PTSD. The current systematic review offers a quantitative overview of the evidence on dropout rates in the treatment of PTSD and a qualitative overview of its underlying reasons and predictors, as reported in existing intervention studies. By means of meta-analysis, the results on dropout rates in PTSD will be assessed, particularly in EMDR and PE. The study focuses on EMDR and PE in an outpatient setting, as PTSD is generally treated in this way. The results of the study can help guide clinicians by providing more precise and comprehensive information than individual studies alone (Drucker, Fleming & Chan, 2016). This systematic review can also be used to identify gaps in knowledge and suggest areas for future research.

To conclude, this current study aims to determine (a) the dropout rate in the treatment of PTSD, (b) whether a significant difference in dropout rate exists between EMDR and PE, (c) reasons for dropout in patients with PTSD, and (d) predictive factors of dropout in patients with PTSD.

Method

In order to answer the research questions, a systematic review was conducted. A systematic review attempts to identify and collect all studies that meet pre-specified selection criteria to answer a given research question (Cochrane, 2017). In this study, the PRISMA Statement (Moher et al., 2009) was used to ensure the quality of this systematic review. Like other studies, systematic reviews are at risk of bias, such as reporting bias. The risk of bias can be minimized by adhering to the PRISMA statement (Drucker, Fleming & Chan, 2016).

Search strategy

A systematic literature search was conducted in two electronic databases: SCOPUS and PsycINFO. Each database was searched for English peer-reviewed RCTs. Only intervention studies were selected for this systematic review because in a proper RCT data about dropout must be described. From a practical point of view, the articles had to be published in 2000 or later in order to limit the search results somewhat. It may also be the case that treatments have been adjusted over the years. By setting a limit for publication date, studies using outdated treatments have been excluded. The search was conducted on 5th December 2018, using the following search string: (therap* OR treatment* OR exposure OR "prolonged exposure" OR "imaginal exposure" OR EMDR OR "eye movement desensitization and reprocessing therapy") AND (PTSD OR "posttraumatic stress disorder" OR "traumatic stress") AND (drop-out OR dropout* OR "drop* out" OR complian* OR non-complian* OR adheren* OR non-adheren* OR complet*) AND (RCT OR "randomized control* trial" OR "controlled trial" OR "random*" OR "intervention* stud*"). In PsycINFO, thesaurus terms were added. See Appendix A for the full search strings. Reviews and meta-analyses that were obtained during the search were checked for eligible references.

Selection of studies

In order to obtain eligible articles, specific inclusion criteria have been defined: (1) the article must concern an RCT; (2) in which EMDR and/or PE was examined; (3) patients in the study must be primarily diagnosed with PTSD as defined in the *Diagnostic and statistical manual of mental disorders, fourth edition* (DSM-IV; American Psychiatric Association [APA], 2000) or *fifth edition* (DSM-V; APA, 2013); (4) the article must provide sufficient information about dropout in the treatment (e.g., dropout rate or predictors for dropout); (5) patients in the study

must be aged 18 or above; and (6) participants had to be receiving treatment in an outpatient setting. Three exclusion criteria have been defined: (1) studies with a very small sample size ($n \leq 10$ patients); (2) studies assessing EMDR or PE combined with pharmacological treatment or other psychotherapies; and (3) studies assessing therapies with a deviate delivery method (e.g., online therapy or Virtual Reality Exposure Therapy). These exclusion criteria have been defined to ensure that clear statements can be made about dropout in the most common treatments for PTSD. Statements about dropout rates are more valuable when the sample size is larger. Furthermore, the effects of the treatment should not be affected by medication or other therapies. Finally, studies that provide treatment exclusively through an online method are excluded, as this delivery method is as yet not commonly used in practice.

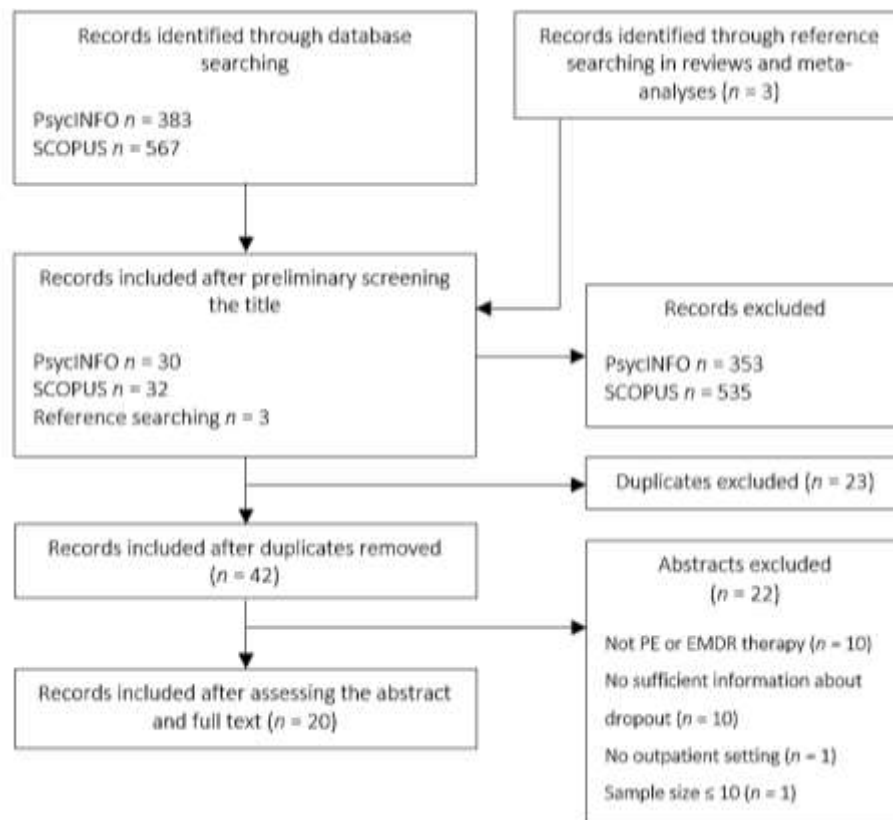


Figure 1. Flowchart of the study selection process

Procedure and data extraction

Four steps have been taken in selecting eligible articles. In step 1, articles were identified through database searching and screening reference lists. In step 2, titles were screened by the author in order to assess the substantive relevance of the articles. In step 3, duplicates were removed. In step 4, further substantive relevance was ensured by screening the abstracts and

full texts and studies were checked for meeting the inclusion criteria. The process of study selection is presented in Figure 1.

Next, data were extracted from the remaining articles. For each included study, the first author, country and year of publication were extracted. Furthermore, the sample sizes of the intervention groups and the mean age and percentage of women of these participants were extracted. In addition, characteristics of the intervention were extracted such as type of intervention and frequency and duration of the intervention. Moreover, the definitions of dropout used in the studies were extracted. In order to answer the first and second research question, the dropout rates in the studies were extracted. A meta-analysis was performed to estimate the pooled (i.e., weighted) dropout rate in the treatment of PTSD. The pooled mean is calculated for overall dropout, dropout in EMDR, and dropout in PE. Where x is the mean dropout rate in the intervention and n is the sample size of the intervention group, the pooled dropout mean is estimated as

$$\bar{x} = \frac{x_1n_1 + x_2n_2 + \cdots + x_n n_n}{n_1 + n_2 + \cdots + n_n}$$

Additionally, an independent-samples t-test was conducted to assess whether there is a significant difference between the found dropout rates for EMDR and PE. Finally, to answer the third and fourth research question, reasons for dropout and predictive factors of dropout that were reported in the studies were extracted.

Results

Description of included studies

Twenty studies are included with a total of 1789 participants and twenty-five reported dropout rates. Although only nineteen studies reported a dropout rate, some studies had multiple intervention groups and, therefore, reported multiple dropout rates. As a result, the number of reported dropout rates is higher than the number of studies being found. Thirteen studies were conducted in the United States of America, five in The Netherlands, one in the United Kingdom, and one in Australia. Six studies were conducted during the last five years, four studies were conducted between five and ten years ago and ten studies were conducted between eleven and eighteen years ago.

The majority of the studies did not provide a definition of treatment dropout. Eight studies did provide a definition as to what constitutes treatment dropout, but these definitions did not fully correspond with each other. Most definitions were based on a number of sessions where the client was absent. However, it differed per study how many sessions a client would have to miss in order to speak of dropout. For instance, some studies considered patients dropouts when they discontinued treatment prior to the first treatment session or after attending the first treatment session, while other studies considered patients dropouts when they failed to complete all sessions of the treatment protocol. In one study, dropout was considered when the treatment was terminated while the treatment goals had not yet been achieved according to the therapist. The definitions of dropout and other characteristics of the included studies are presented in Table 1.

Participant characteristics

In fourteen studies, the majority of the sample was female. In four studies, the majority of the participants was male. Two studies did not report the distribution of sex. The average age of all participants was 36.51. In three studies, no information was found in relation to age.

All participants were diagnosed with PTSD, however, no information was provided whether this diagnosis was made by a psychologist or psychiatrist. Five studies included women with PTSD from sexual assault, rape or childhood sexual abuse. Other studies included patients with combat-related PTSD ($n = 4$), patients with chronic PTSD ($n = 2$), and patients with PTSD and a psychotic disorder ($n = 1$). Eight studies gave no further specifications other than that the patients suffered from PTSD.

Intervention characteristics

The majority of the studies focused on exposure therapy, although different names were used such as Prolonged Exposure (PE), Imaginal Exposure (IE) or Trauma-focused Cognitive Behavioral Therapy (TFCBT). However, these treatments use the same rationale. Furthermore, two studies focused on exposure therapy in person versus exposure therapy via telehealth technology. Similar, one study focused on exposure therapy versus Virtual Reality Exposure. Lastly, four studies focused on EMDR.

In the majority of the studies, treatment sessions were offered weekly, ranging from 6 to 12 sessions. Most sessions endured 90 minutes, ranging from a 45 minutes-session to a 120-minutes during session. The duration and frequency of EMDR and PE were similar. Three studies did not provide information about treatment duration and frequency.

Table 1*Characteristics of studies included in the systematic review*

First author (year)	Population, country	Female, %	Mean age (SD)	Intervention (n)	n sessions and session duration	Definition of dropout	Dropout rate, %	Reasons for dropout	Predictive factors for dropout
Arntz (2007)	Chronic PTSD patients, the Netherlands	69.7 60.7	35.41 (12.73) 35.29 (11.29)	IE (n = 39) IE + IR (n = 28)	9 weekly 90-minute sessions	-	51 25	Treatment was too aggravating. Considered themselves recovered.	-
Bryant (2007)	Trauma survivors, Australia	54.9	36.96 (11.64) ^b	IE (n = 111)	8 weekly 90-minute sessions	Participants who had completed an initial assessment, had been randomized to one of the treatment conditions, and had ceased attending treatment prior to the scheduled eight sessions.	22	-	Catastrophic cognitive styles Avoidance tendencies
Gros (2013)	Combat veterans, USA	6.5	33.8 (9.3)	Exposure (n = 92)	8 sessions	Discontinuing treatment prior to the completion of all eight sessions of the treatment protocol.	28	-	Disability status Less post deployment social support
Gros (2018)	Combat veterans with PTSD, USA	1.9	41.4 (14.1)	PE in person or via telehealth technology (n = 132)	8-12 sessions	Patients who discontinued treatment while attended first treatment session	29	-	Disability status Use of telehealth

First author (year)	Population, country	Female, %	Mean age (SD)	Intervention (n)	n sessions and session duration	Definition of dropout	Dropout rate, %	Reasons for dropout	Predictive factors for dropout
Hagenaars (2010)	Patients with PTSD, the Netherlands	83	35.75 (11.74)	PE (n = 71)	8-12 weekly 45-minute sessions	-	15.5	-	-
Hernandez-Tejada (2014)	Combat veterans, USA	0	46.5 (14.5)	Exposure in-person or telemedicine (n = 258)	-	-	26.7	Both practical (e.g. work, time, parking, childcare) and treatment-related (e.g. bad feeling, worrying about losing control) dropout reasons	-
Ironson (2002)	Patients from university-based clinic with PTSD, USA	77.3	-	EMDR (n = 10) PE (n = 12)	1-3 preparatory sessions, 1-6 active sessions; 90 minutes	Dropout after one active session, which meant that participants had completed the three preparatory sessions.	10 50	Difficulty traveling Preoccupied with a legal deposition Working two jobs	-
Keefe (2018)	Female patients with rape trauma, USA	100	32.5 (10.3)	PE (n = 81)	9 sessions; 90 minutes	-	30.9	-	Childhood physical abuse Minority race Reported feelings of anger Fewer years of education
McDonagh (2005)	Adult female survivors of childhood sexual abuse, USA	100	39.8 (9..9)	TFCBT (n = 29)	7 120-minute sessions and 7 90-minute sessions	-	41	-	Greater anxiety More depression Lower reported quality of life More reported distorted cognitions Comorbid axis II diagnosis

First author (year)	Population, country	Female, %	Mean age (SD)	Intervention (n)	n sessions and session duration	Definition of dropout	Dropout rate, %	Reasons for dropout	Predictive factors for dropout
Power (2002)	Patients with PTSD, UK	-	38.6 (11.8) 43.2 (11.0)	EMDR (n = 39) PE (n = 37)	10 weeks; weekly; 90 minutes	Failed to attend prior to commencement of treatment or failed to attend mid-point assessment	31 ^a 43	-	Higher frequency score on CAPS-C Avoidance subscale
Reger (2016)	Duty soldiers with PTSD, USA	5.6 3.7	30.89 (7.09) 29.52 (6.47)	PE (n = 54) Virtual Reality Exposure (n = 54)	10 90-120 minute sessions	-	41 44 ^a	Geographic relocation away from the study site (n = 9) Time demands of military training/scheduling problems (n = 4) Increases in symptomatology (n = 4) Improvement in symptoms (n = 2) Dissatisfaction with assigned treatment (n = 6) Losses to follow up (n = 12)	-
Resick (2002)	Female rape victims, USA	100	32 (9.9)	PE (n = 40)	6 weeks; twice weekly; 90 minutes	-	27.3	-	-
Rizvi (2009)	Women with PTSD from sexual assault, USA	100	31.7 (9.8)	PE (n = 73)	9 sessions; 90 minutes	Completing less than 7 of 9 treatment sessions	23.3	-	Younger age Fewer years of education Lower intelligence

First author (year)	Population, country	Female, %	Mean age (SD)	Intervention (n)	n sessions and session duration	Definition of dropout	Dropout rate, %	Reasons for dropout	Predictive factors for dropout
Szafranski (2017)	Female patients with PTSD who dropped out of treatment, USA	100	31.85 (12.32)	PE (n = 53)	-	Participants who initiated treatment and did not complete 100% of the treatment sessions	-	-	Younger age may be a predictor of early treatment response, rather than negatively-construed dropout
Van den Berg (2015)	Patients with PTSD and a psychotic disorder, the Netherlands	54.5 56.6	40.4 (11.3) 42.6 (10.3)	EMDR (n = 55) PE (n = 53)	8 weekly 90-minute sessions	-	20 ^a 24.5	-	-
Van der Kolk (2007)	Individuals with PTSD, USA	75.9	38.7 (14.3)	EMDR (n = 29)	8 weeks	-	17	-	Younger age Child-onset trauma
Van Emmerik (2011)	Patients with PTSD, The Netherlands	-	-	TFCBT (n = 123)	-	-	33.3	-	-
Van Minnen (2002)	Chronic PTSD patients, the Netherlands	59 61.9	33.2 (10.7) ^b 35.3 (12.3) ^b	IE group 1 (n = 59) IE group 2 (n = 63)	9 weekly 90-minute sessions	-	24 32	Traveling time, having young children to care for, or encountering stressful life events such as illness, marital problems or the death of a loved one.	In group 2, the use of benzodiazepines was related to less dropout. Also, the use of alcohol was related to higher dropout.

First author (year)	Population, country	Female, %	Mean age (SD)	Intervention (n)	n sessions and session duration	Definition of dropout	Dropout rate, %	Reasons for dropout	Predictive factors for dropout
Yadin (2005)	Female assault survivors with PTSD, USA	100	-	PE (n = 79)	9-12 weekly sessions of 90-120 minutes	-	34.2	-	Younger age
Zayfert (2005)	Patients with PTSD, USA	82	37.8 (11.3)	TFCBT (n = 115)	Minimum of 7 sessions	Patients were considered dropouts when terminating treatment if treatment goals had not been met according to their therapist.	72	-	Pretreatment measures of avoidance Pretreatment measures of depression Drop outs were more likely to meet criteria for BPD

Notes. **BDI** = Beck Depression Inventory; **BPD** = borderline personality disorder; **CAPS** = Clinician Administered PTSD Scale; **EMDR** = Eye Movement and Desensitization and Reprocessing; **IE** = Imaginal Exposure therapy; **PTSD** = Posttraumatic Stress Disorder; **PE** = Prolonged Exposure; **TFCBT** = Trauma-focused cognitive-behavioral therapy; **UK** = United Kingdom; **USA** = United States of America.

^a no significant difference in dropout rate between these treatments.

^b mean age and *SD* of the group of dropouts.

Dropout rate in the treatment of PTSD

Twenty-five dropout rates have been found in a total of nineteen studies. The dropout rates range from 10 to 72 percent. The average of all dropout rates in the included studies is 31.83% ($SD = 13.33$). When corrected for sample sizes, the pooled mean is 31.97%.

Is there a difference in dropout rates between EMDR and PE?

The second research question was about whether there is a difference in dropout rates between EMDR and PE. Four studies reported a dropout rate in EMDR and eighteen studies reported a dropout rate in PE. An independent-samples *t*-test was conducted to compare the mean dropout rate in EMDR and PE. There is a significant difference in the mean dropout rate in EMDR ($M = 19.50$, $SD = 8.74$) and the mean dropout rate in PE ($M = 34.18$, $SD = 12.87$); $t(23) = 2.168$, $p = .041$. When corrected for sample sizes, the pooled mean for dropout in EMDR is 21,82% and the pooled mean for dropout in PE is 32,81%, which also indicates a noteworthy difference in dropout rate between EMDR and PE.

Furthermore, three studies assessed dropout rates in both EMDR and PE. Van den Berg et al. (2015) found no significant difference in dropout rate between PE (24.5%) and EMDR (20%). In this study, eight weekly 90-minute treatment sessions were offered to patients with PTSD and a psychotic disorder. In addition, Power et al. (2002) found no significant differences in dropout rate between EMDR (31%) and exposure therapy (43%) in a ten-week program with weekly 90-minute treatment sessions. In contrast, Ironson, Freund, Strauss, and Williams (2002) compared EMDR and PE in patients with PTSD from an university-based clinic with relatively small sample sizes. They found a significant difference in dropout rate between EMDR and PE. One out of ten participants dropped out of EMDR and six out of twelve patients dropped out of PE. As to this significantly lower dropout rate in EMDR, the researchers argued that EMDR was better tolerated.

Although in this study, only a few studies reported a dropout rate in EMDR and two studies did not found a significant difference, there is evidence that EMDR has a significantly lower dropout rate. In that case, EMDR is the favored treatment when it comes to dropout.

Reasons for dropout in patients with PTSD

Five studies mentioned reasons for dropout. Some studies highlighted more practical and non-treatment-related reasons for dropout which were bound to everyday life and can occur as well

in other mental disorders. Other studies merely described treatment-related reasons, namely the impact of the treatment on symptomatology and dealing with stressful treatment components.

Practical and non-treatment-related reasons

Some practical reasons that have been described are related to work, such as being too tired after work to attend the treatment sessions or having multiple jobs (Hernandez-Tejada, Zoller, Ruggiero, Kazley, & Acierno, 2014; Ironson, Freund, Strauss & Williams, 2002). Other practical reasons described are problems with parking or transportation, time scheduling problems, difficulties with the care for young children, and being preoccupied with current stressful life events such as marital problems, the death of a loved one or illness (Hernandez-Tejada et al., 2014; Reger et al., 2016; Ironson et al., 2002; van Minnen, Arntz & Keijsers, 2002). Van Minnen, Arntz and Keijsers (2002) suggested that patients may eventually return to treatment and try again when these problems have been resolved.

Treatment-related reasons

In contrast, some reasons for dropout regard dealing with stressful treatment components or the treatment itself. Some patients argued that the imaginal exposures made them feel bad and that they worried about losing control during exposures. These patients found it difficult tolerating thinking about the trauma (Hernandez-Tejada, 2014). Furthermore, some patients experienced an increase in symptomatology or were dissatisfied with the treatment (Reger et al., 2016). On the other hand, some patients reported a decrease in symptoms (Reger et al., 2016; Arntz, Tiesema & Kindt, 2007). Some of them considered themselves recovered and therefore opted to discontinue treatment (Arntz et al., 2007). Finally, in one study (Arntz et al., 2007), the clinicians reported that many patients were from poor and unstable backgrounds and that the patients felt highly ambivalent about a treatment in which they would be confronted with the trauma rather than avoiding these painful aspects of their traumatic memories. Arntz et al. (2007) suggested that many patients found it difficult to fully engage in therapy and thus dropped out.

In conclusion, both non-treatment-related and treatment-related reasons appear to be important in the decision to stop treatment prematurely. However, the role of practical reasons in the decision of patients to prematurely stop treatment seems to have been described more frequently

in the studies found. Apparently, for many patients it is difficult to integrate treatment into daily life due to all kinds of practical obstacles.

Predictive factors for dropout in patients with PTSD

The fourth research question aims to answer whether there are predictive factors for dropout in patients with PTSD. Eighteen studies investigated potential predictive factors in patients with PTSD for treatment dropout. Predictive factors can be divided into demographic variables, trauma characteristics, symptom-related factors, personality characteristics, and other predictive factors.

Demographic variables

According to Hagenaars, van Minnen & Hoogduin (2010), gender is not associated with dropout. Furthermore, in the studies of Hagenaars et al. (2010) and Gros, Price, Yuen, and Acerno (2013), age was not shown to be related to dropout. However, three studies did find that younger age was related with a greater risk of dropout (Rizvi, Vogt & Resick, 2009; Yadin et al., 2005; Van der Kolk et al., 2007). Szafranski, Smith, Gros, and Resick (2017) argued that younger age may be a predictor of early treatment response, rather than negatively-construed dropout. Furthermore, fewer years of education and lower intelligence appeared to be related to dropout (Rizvi et al., 2009). However, Hagenaars et al. (2010) did not find an association between educational level and dropout. Keefe et al. (2018) found that being a racial minority is associated with higher risk of dropout in PE. Lastly, three studies reported that demographic variables are not related to treatment dropout (Power et al., 2002; Hernandez-Tejada et al., 2014; van Minnen et al., 2002).

Trauma characteristics

In studies from van Minnen et al. (2002) and Hagenaars et al. (2010), trauma characteristics such as childhood trauma, multiple trauma, personal trauma, and time since trauma were not related to treatment dropout. This is in line with RCTs from Resick et al. (2002) and Foa et al. (2005), which show that dropout rate is comparable in victims of adult trauma and child sexual abuse. In contrast, van der Kolk et al. (2007) concluded that child-onset trauma was related to higher treatment dropout. Keefe et al. (2018) found that childhood physical abuse and current relationship abuse predicted dropout in PE. The researchers suggest that a possible explanation could be that patients find it hard to tolerate the activation of these memories or ongoing trauma.

Patients with these experiences may be more likely to continue to avoid in an effort to cope with distressing memories and feelings (Keefe et al., 2018).

Symptom-related factors

Several studies investigated whether symptom-related factors are related to treatment dropout. Overwhelming evidence suggests that pretreatment PTSD symptom severity does not predict dropout (Reger et al., 2016; Hernandez-Tejada, 2016; McDonagh et al., 2005; Gros et al., 2013; Hagenaars et al., 2010; Resick et al., 2002; Ironson et al., 2002). Furthermore, in the study of Reger et al., (2016), the slope of change in these symptoms during treatment neither predict dropout. Several studies indicate that baseline depression symptoms are not related to dropout (Hagenaars et al., 2010; Resick et al., 2002; Ironson et al., 2002; Hernandez-Tejada et al., 2014), while two studies found that depression symptoms are related to treatment dropout (Zayfert et al., 2005; McDonagh et al., 2005). According to Hagenaars et al. (2010), levels of dissociative symptoms (dissociation, depersonalization, and numbing) are not related to dropout. Furthermore, Van Minnen et al. (2002) found that feelings of anger, shame or guilt are not related to treatment outcome or dropout. However, two studies showed that anger is related to drop out (Rizvi et al., 2009; Keefe et al., 2018). In a study by McDonagh et al. (2005), greater anxiety is related to dropout. Furthermore, a study of Bryant et al. (2007) showed that patients with PTSD who displayed more catastrophic cognitions and avoidance were more likely to drop out of exposure therapy. Bryant et al. (2007) offers the following explanation for the role of catastrophic cognitions in treatment dropout: “It is possible that cognitive styles that are characterized by catastrophic interpretations about one’s trauma reactions, one’s ability to cope with distress, and one’s expectation about future trauma may lead individuals to drop out of therapy because they conclude that the demands of therapy are excessive” (p. 15). In addition, patients with strong tendencies to avoid aversive events tend to avoid the demands of treatment by dropping out. The researchers suggest that treatment dropout is most likely when a patient catastrophizes about treatment effects and then responds with avoidance. This is in line with research from McDonagh et al. (2005), which stated that more reported distorted cognitions are related to dropout. Research from Power et al. (2002) and Zayfert et al. (2005) confirmed the finding that higher pretreatment measures of avoidance are a predictor of treatment dropout. Lastly, Larsen, Stirman, Smith, and Resick (2016) investigated the effects of symptom exacerbations in trauma-focused treatments on treatment outcome and dropout. They found no relation between symptom exacerbations and treatment dropout.

Personality characteristics

Van Emmerik, Kamphuis, Noordhof, and Emmelkamp (2011) investigated if the five-factor model personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) moderate dropout in PTSD, however, no evidence was found. Zayfert et al. (2005) found that dropouts were more likely to meet the criteria for borderline personality disorder. In line with this research, McDonagh et al. (2005) found that patients who are diagnosed with a comorbid personality disorder are more likely to drop out. In contrast, van Minnen et al. (2002) found that personality pathology was not related to treatment dropout.

Other predictive factors

One study found that alcohol and medication use was related to treatment dropout. In a study by van Minnen, Arntz and Keijsers (2002), in which patients with mixed traumas were treated with PE, alcohol use appeared to be related to dropout. Moreover, the use of benzodiazepines appeared to be related with less dropout. The use of benzodiazepines, however, makes the treatment less effective because it reduces anxiety. Gros et al. (2013) investigated predictors of treatment dropout in exposure therapy for combat veterans. This study showed that veterans who were disabled were more likely to drop out in treatment than veterans who were not disabled. Furthermore, a lack of social support increases the risk for treatment discontinuation. It is reasonable to expect that improved social support may lower the risk for treatment dropout (Gros et al., 2013). Research of Gros et al. (2018) confirms the finding that disability status is a predictor of treatment dropout in combat veterans. In addition, this study demonstrated that the use of telehealth in the treatment of PTSD is a predictor for dropout. Lastly, McDonagh et al. (2005) found that a lower reported quality of life is related to treatment dropout.

In conclusion, many possible predictive factors for treatment dropout have been identified. Predictive factors may relate to factors such as younger age, level of education, traumas in childhood, symptom-related factors such as anger, anxiety, and avoidance, catastrophic cognitions, comorbid personality disorders, alcohol use and lack of social support.

Discussion

In the current study, a systematic review of literature and meta-analysis on dropout in the treatment of PTSD was conducted. This review aimed to examine the dropout rate in the treatment of PTSD, whether there is a difference in dropout rate between EMDR and PE, the reasons for dropout, and predictive factors for dropout in patients with PTSD.

Principal findings

The first aim was to examine the dropout rate in the treatment of PTSD. Analyses of the twenty-five reported dropout rates show that the overall pooled dropout rate is 31.97%. It can be stated that nearly one-third of patients quit treatment prematurely. The findings in the systematic review of Goetter et al. (2016) is comparable with a pooled dropout rate of 36%. Furthermore, the dropout rate that is found in this current study is in line with the overall dropout rate of 31.7% in the World Health Organization Mental Health Surveys (Wells, 2013) and the overall dropout rate of 33.2% in a study by Reneses, Muñoz and López-Ibor (2009), which both included all sort of mental disorders. These figures support the claim that dropout is a problem that is widespread throughout the mental health sector (Sharf, 2009). The dropout rate in PTSD does not appear to be higher than in other mental disorders, but it remains an important problem because of its consequences as described earlier in the introduction.

The second aim was to examine whether there is a difference in dropout rate between EMDR and PE. Four studies reported a dropout rate in EMDR, while eighteen studies reported a dropout rate in PE. From the independent-samples t-test, a significant difference in dropout rate between EMDR ($M = 19.50$, $SD = 8.74$) and PE ($M = 34.18$, $SD = 12.87$) was established; $t(23) = 2.168$, $p = .041$. Furthermore, one study found a significant difference in dropout rates between EMDR and PE (Ironson et al., 2002), however, the sample size in this research was relatively small. In contrast, two studies with larger sample sizes found no significant difference in dropout rates between EMDR and PE (Van den Berg et al., 2015; Power et al., 2002). Due to the small sample sizes in the studies and the contrasting evidence, it is difficult to draw firm conclusions whether a significant difference exists in the dropout rate between EMDR and PE. However, the results of the independent-samples t-test indicate a significant difference, which could be relevant to clinical practice. Since both treatments have been shown to be effective (e.g. Cusack et al., 2016), a significant difference in dropout rate could imply that EMDR is the favored treatment because fewer patients drop out, resulting in a better treatment outcome

(Klein et al., 2003; Tarrier et al., 2000). Further research is desirable because of the relatively small sample sizes and the few studies found that reported dropout rates in EMDR.

The third aim was to examine reasons that stop patients from continuing with treatment. Both the importance of practical reasons and treatment-related reasons have been emphasized. Practical reasons are merely work-, time-, and transport-related. These practical reasons are non-treatment-related reasons, which can also occur in the treatment of other mental disorders. Apparently, for many patients it is difficult to integrate treatment into daily life due to all kinds of practical obstacles. Treatment-related reasons for dropout regard dealing with stressful treatment components, such as feeling bad due to exposure and an increase in symptoms. Some patients were afraid to lose control during treatment. It seems to be difficult for many patients to be confronted with the trauma and to have to relive the painful aspects of these memories. Furthermore, some patients considered themselves recovered and therefore opted to discontinue treatment. It depends on the definition of dropout, whether this should be examined as dropout. It could also be concluded that the treatment was successful and could be stopped before the end of the protocol. In conclusion, both practical and treatment-related reasons appear to be important in the decision to stop treatment prematurely. However, it should be taken into account that it may be easier for patients to report practical reasons rather than reasons associated with anxiety, avoidance or dissatisfaction. Therefore, it may be that the role of treatment-related reasons is under-reported in the studies that participate in this review.

The fourth aim was to identify possible predictive factors for treatment dropout. From the results, it can be concluded that predictive factors can be divided into demographic variables, trauma characteristics, symptom-related factors, personality characteristics, and other predictive factors. Contrasting evidence has been found for many predictive factors, such as age, level of education, the onset of the traumatic event, anger, and comorbid personality disorders, making it difficult to draw strong conclusions. There is, however, convincing evidence that PTSD symptom severity is not related to treatment dropout. Furthermore, most evidence seems to exist for the role of catastrophic cognitions, feelings of anxiety, and avoidance behavior in dropout. From the vision of cognitive behavioral therapy, anxiety arises through irrational cognitions. Avoidance is the behavior that occurs as a result of anxiety because it reduces anxiety (Ehlers & Clark, 2000). However, in the long term, avoidance behavior ensures that anxiety persists and becomes even greater (VCGt, n.d.). It could be stated that these factors are interconnected and maintain each other, and therefore, making it difficult for patients to complete treatment. As a final point, it is interesting to note that these predictors

could provide insight into the difference in dropout rate between EMDR and PE. As discussed earlier in the introduction, patients are exposed more intensively with the traumatic event in PE than in EMDR. Therefore, EMDR is perhaps better tolerated, even for patients who have higher anxiety and avoidance traits.

Strengths and limitations

The current systematic review was conducted according to the PRISMA statement (Moher et al., 2009). As stated in Cuijpers (2016), a systematic review is by preference conducted by two independent researchers. In this study, the author conducted the systematic search and the selection and analysis of articles alone. However, the inclusion and exclusion criteria were unambiguous, so the selection of articles was not a complex process.

A strength of the current study is that systematic research is conducted in more than one database, with an extensive search string (see Appendix A). Furthermore, this review only included RCTs. RCTs ensure the quality and consistency of the research and reporting. A possible disadvantage of RCTs might be that they do not always resemble clinical implementation of interventions (Concato, Shah & Horwitz, 2000). However, in this current study, the included studies offered treatments like they are also offered in clinical practice with regard to the treatment protocol, duration, and frequency. Hence, this argument does not apply. Furthermore, according to the researcher's knowledge, no rewards have been used to increase the patients' motivation for treatment. Nonetheless, if the current study had also included qualitative studies, more information may have been obtained with regard to reasons for dropout.

Another possible limitation within the current study is the operationalization of dropout in the identified studies. In many studies it was unclear what was meant by dropout, making it difficult to interpret the overall dropout rate. Moreover, the definitions that were provided in some of the studies did not correspond with each other. This variation in the definition of dropout may explain why the dropout rates of the included studies were divergent (Wierzbicki & Pekarik, 1993). According to Wierzbicki and Pekarik (1993), the judgement of the therapist on whether a patient is ready to quit treatment may be the best method of defining dropout. However, it is striking that in this systematic review, the only study that used the judgement of the clinician to define dropout, reports the highest dropout rate (i.e., 72%).

Another possible limitation of the current study may be that only EMDR and PE are included in the review. There are more treatments that are sometimes being used for PTSD,

such as writing therapy or mindfulness training. In that respect, this review is not completely exhaustive. Nevertheless, it was deliberately chosen to limit this review to EMDR and PE, as these are the most common treatments in clinical practice. However, relatively few studies were found in the systematic search that focused on EMDR, making it difficult to draw firm conclusions about a difference in dropout rate between EMDR and PE.

Like other studies, systematic reviews are at risk for bias from a number of sources (Drucker, Fleming & Chan, 2016). A key goal of a systematic review is to identify all relevant data to answer the research question. According to Drucker, Fleming and Chan (2016), evidence selection bias, or reporting bias, can occur when a systematic review does not represent all available data on a topic. According to the authors of the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2011), there are some different types of reporting biases such as publication bias. Publication bias occurs when data from statistically significant studies are more published than those that are not statistically significant. Only a proportion of research projects ultimately reach publication in an indexed journal and thus become easily identifiable for systematic reviews (Higgins & Green, 2011). It may also be the case in this systematic review that articles have been missed that have not yet been published or that relevant articles did not appear in the systematic search. Other forms of reporting bias are location bias, language bias and outcome reporting bias (Higgins & Green, 2011). An attempt was made to limit location bias by using more than one database. Language bias could play a role in this review since only English articles are included. Finally, outcome reporting bias is limited because non-significant results (e.g., non-significant differences between dropout rate in EMDR and PE and non-significant predictors of dropout) are mentioned in this review as well.

Implications for practice

Based on the results of this systematic review which show that a significant proportion of patients seem to drop out in treatment, there are some implications for practice. In clinical practice, it is often thought that the severity of PTSD symptoms is a predictor of dropout. This review shows convincing evidence that pre-treatment PTSD symptom severity is not related to treatment dropout. Therefore, therapists should not be afraid to start trauma treatment if PTSD symptoms are severe. Therapists may look closely at the ROM-questionnaires (Routine Outcome Monitoring) that are performed prior to the treatment, to identify catastrophic cognitions and traits such as anger, anxiety, and avoidance. Catastrophic cognitions could be

investigated and possibly challenged with techniques from Cognitive Behavioral Therapy. Furthermore, attention might be paid to the fact that PTSD symptoms may increase at the beginning of the treatment since trauma treatment is intensive and unlocks painful memories that often have been avoided for a long time. Therapists may educate patients that this increase in symptoms is normal and that the symptoms and anxiety will become gradually less severe. By educating the patients about the rationale of the treatment, they are better prepared for the effects of trauma treatment and they may be less likely to drop out. Lastly, the use of alcohol and benzodiazepines should preferably be limited or stopped because alcohol increases the risk of dropout and benzodiazepines reduces the effectiveness of the treatment.

Implications for future research

The findings of this review highlight shortcomings in the reporting of intervention studies in patients with PTSD. It is remarkable to note that the majority of the participated studies did not provide a definition of dropout. The studies that did provide a definition of dropout used different ones. It appears that there is still no consensus as to what constitutes dropout, which is in line with earlier findings of Wierzbicki and Pekarik (1993). They argued that the best method of defining dropout is to use the therapist's judgment. In this systematic review, only one study used this definition (Zayfert, 2005). When dropout is defined only as the decision of a patient to quit treatment before the end of the protocol, patients who are considered recovered by their therapist before the protocol has ended would be mistakenly considered dropouts. For future research, it is strongly recommended to reach consensus as to what dropout constitutes so that divergent dropout rates are not the result of various definitions that have been used.

Furthermore, the results show that relatively few studies report reasons for dropout even though this is recommended in the CONSORT Statement for reporting randomized trials (Moher et al., 2010). In order to enhance the quality of reporting randomized trials, it is recommended to describe the reasons for dropout. Moreover, it is recommended to conduct more qualitative research on reasons for dropout, for example by using (semi-)structured interviews. More knowledge about the reasons for dropout will enable us to reduce dropout in clinical practice. In addition, qualitative research could also focus on the needs of patients in order to enable them to complete treatment, so treatments can be optimized. Preferably, the research should be carried out in real-world clinical practice, such as within the Center for Psychotrauma.

Conclusion

To the author's knowledge, this is the first systematic review that assesses dropout and its underlying reasons and predictors in the treatment of patients with PTSD. Although there are still challenges in the future for research about dropout in patients with PTSD, this systematic review demonstrated that approximately one-third of patients with PTSD quit treatment prematurely (31,97%). There is evidence, but not unanimous evidence, that EMDR is favored when it comes to dropout rates. It seems that catastrophic cognitions, anxiety and tendency to avoid are important predictors for dropout. Apparently, for many patients it is difficult to be confronted with painful memories of the trauma.

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Appendix

Appendix A: Search strings

Search string in SCOPUS

(ABS (therap* OR treatment* OR exposure OR "prolonged exposure" OR "imaginal exposure" OR emdr OR "eye movement desensitization and reprocessing therapy") AND ABS (ptsd OR "posttraumatic stress disorder" OR "traumatic stress") AND ABS (drop-out OR dropout* OR "drop* out" OR complian* OR non-complian* OR adheren* OR non-adheren* OR complet*) AND ABS (rct OR "randomized control* trial" OR "controlled trial" OR "random*" OR "intervention* stud*")) AND PUBYEAR > 1999 AND (LIMIT-TO (LANGUAGE , "English"))

Retrieved results: 567

Search string in PsycINFO

AB (therap* OR treatment* OR exposure OR "prolonged exposure" OR "imaginal exposure" OR emdr OR "eye movement desensitization and reprocessing therapy") AND AB(ptsd OR "posttraumatic stress disorder" OR "traumatic stress") AND AB (drop-out OR dropout* OR "drop* out" OR complian* OR non-complian* OR adheren* OR non-adheren* OR complet*) AND AB (RCT OR "randomized control* trial" OR "controlled trial" OR "random*" OR "intervention* stud*")

Refined by:

Language: English

Publication year: 2000-2018

Methodology: empirical study, clinical trial, treatment outcome

Peer-reviewed

Retrieved results: 383

Appendix B: Output SPSS Statistics

Group Statistics

	Treatment	N	Mean	Std. Deviation	Std. Error Mean
Dropout_rate	exposure	21	34,1762	12,86984	2,80843
	emdr	4	19,5000	8,73689	4,36845

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Dropout_rate Equal variances assumed	,801	,380	2,168	23	,041	14,67619	6,76971	,67199	28,68039	
Dropout_rate Equal variances not assumed			2,826	5,843	,031	14,67619	5,19332	1,88514	27,46724	



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