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Psychotherapy Dropout in Military Populations: A Systematic Review and Meta-Analysis

by

Elizabeth Penix

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Committee Approval

To the Graduate Faculty:

The members of the committee appointed to examine the thesis of Elizabeth Penix find it satisfactory and recommend that it be accepted.

Joshua K. Swift, Ph.D.,
Major Advisor

Xiaomeng Xu, Ph.D.,
Committee Member

Erika Fulton, Ph.D.,
Committee Member

Joshua Wilk, Ph.D.,
Committee Member

Joel Bocanegra, Ph.D.,
Graduate Faculty Representative

Dedication

This work is dedicated to the first Veteran in my life, my Opa, who raised and inspired me to value duty, perseverance, and excellence. Ultimately, your unwavering encouragement to pursue higher education and meaningful work culminated in my pursuit of my doctorate and career. While you are not here to witness the actualization of your support as it is evidenced in this document, this achievement is certainly a reflection of that support.

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Abstract

Psychotherapy Dropout in Military Populations: A Systematic Review and Meta-Analysis

Dissertation Abstract--Idaho State University (2023)

This study aimed to conduct a systematic review and meta-analysis of dropout among Service Members and Veterans initiating psychotherapy. Specifically, the objectives of this meta-analysis included (1) obtaining an average, weighted psychotherapy dropout rate and (2) examining covariates and moderators of dropout. Overall, 338 articles met study inclusion criteria. These articles comprised data from over 60 years of published research and 735,771 Service Members and Veterans initiating psychotherapy. The average dropout rate, using a random effects model, was 23.40%, 95% CI [20.5%, 26.6%]. Using mixed effects models, dropout was not significantly linked with a number of client demographic (age, employment status, education levels, female gender, race/ethnicity), client military (sample type, service branch, rank, combat deployment history, service era, service connection), client diagnostic (prevalence of a range of mental health diagnoses, traumatic brain injury), therapist (female gender), treatment (theoretical orientation, manualized interventions, treatment format, intensity of services ranging from outpatient to inpatient settings, in person versus telehealth), and research (publication year, effectiveness versus efficacy studies, search strategy, country) variables. However, higher dropout was linked to having fewer clients in committed relationships and having more clients who were in the reserve component. Studies utilizing both experienced and trainee therapists yielded higher dropout rates than those utilizing experienced therapists only. Higher dropout rates were associated with interventions delivered in Department of Veterans Affairs (VA) versus civilian settings as well as approaches that had a low or no time limit versus a high time limit. Articles defining dropout using therapist report yielded higher

dropout rates than articles defining dropout using failure to complete a protocol. Lower dropout rates were observed in articles that did not define dropout compared to articles that defined dropout using any method (therapist report, failure to complete a protocol, stopped attending sessions, and other). Taken together, approximately one of four Service Members and Veterans prematurely terminate psychotherapy. These findings highlight the utility of targeting treatment engagement among military populations that are not in committed relationships, are affiliated with the reserve component, receive care from trainee therapists, seek treatment from VA settings, and are engaged in time-limited psychotherapies.

Keywords: Dropout, psychotherapy, military, veteran, meta-analysis

Chapter 1: Introduction

Service Members and Veterans (hereafter, “military populations”) may be at risk for experiencing a range of mental health concerns, such as symptoms of posttraumatic stress disorder (PTSD; Fulton et al., 2015; Hoge et al., 2004, 2014; Thomas, 2010; Williamson et al., 2018), depression (Hoge et al., 2004; Thomas, 2010; Williamson et al., 2018), anxiety (Hoge et al., 2004; Williamson et al., 2018), substance use (Thomas, 2010; Wilk et al., 2010; Williamson et al., 2018), and suicidal ideation (Bryan et al., 2015). Given the associated distress and impairment associated with these concerns, many choose seek psychotherapy for relief (e.g., Hoge et al., 2014; Kim et al., 2010). Overall, meta-analytic findings suggest that psychotherapy is generally effective as a mental health intervention among military populations (e.g., Goldberg et al., 2020; Kitchiner et al., 2012; Lewis et al., 2020; McClellan et al., 2022; Steenkamp et al., 2015; Straud et al., 2019). However, some findings indicate that there are also opportunities for improving psychotherapy effectiveness among military populations. For example, military populations may see fewer reductions in mental health symptoms and may be less likely to achieve symptom remission than their civilian counterparts (Straud et al., 2019). Additionally, military populations may also prematurely terminate psychotherapy services at higher rates (e.g., Goetter et al., 2015; Hoge et al., 2014; Kehle-Forbes et al., 2016).

In particular, premature termination may be an important consideration among military populations. Specifically, premature termination refers to a client’s unilateral decision to discontinue psychotherapy without fully recovering and/or before achieving their treatment goals (Hatchett & Park, 2003). This phenomenon is associated with a number of potentially adverse consequences. For example, meta-analytic findings suggest that clients who drop out of psychotherapy are more likely to report poorer symptom-related outcomes than clients who

complete a full course of treatment (Straud et al., 2019). Other potential consequences include inadequate progress towards clients' treatment goals, taking a toll on financial resources and staff morale, preventing others from receiving services, and inadvertently burdening other supports who may be less prepared to help individuals with lingering mental health symptoms, such as friends and family (Barrett et al., 2008).

Inadequate progress on treatment goals and lingering symptoms can be problematic among Service Members. In certain military settings (e.g., combat deployments, training exercises), individuals are exposed to potentially traumatic events as a part of their occupational duties (Adler & Castro, 2013). For example, during combat deployments, Service Members may experience or witness the personal injuries of others, witness the deaths of others, and or kill others in the line of duty. These experiences are highly stressful, and in such settings lingering pre-deployment mental health symptoms can worsen (e.g., Curley & Warner, 2017; Warner et al., 2011). This worsening of symptoms may impair one's ability to appropriately respond to environmental threats during high-stress operations. Such impairment can in turn detract from individual and unit safety as well as from mission success. Psychotherapy dropout in garrison may therefore increase such risks, particularly given that clients who drop out report worse treatment outcomes (Barrett et al., 2008). Thus, better understanding psychotherapy dropout in military populations is one potential avenue for optimizing military populations' experiences in psychotherapy and thus improving their mental health and occupational functioning.

Overall, individual study estimates of dropout rates among military populations seeking psychotherapy have varied greatly, from 22% (Niles et al., 2018) to 96% (Browne et al., 2021). To-date, only two meta-analyses have estimated an average dropout rate in military populations, which ranged from 24% (Edwards-Stewart et al., 2022) to 36% (Goetter et al., 2015) of clients

receiving PTSD treatment. However, the degree to which findings from these two PTSD-focused meta-analyses may generalize to military populations who seek psychotherapy services for a range of other presenting concerns is unknown. Nevertheless, these estimates are somewhat concerning given that they are relatively higher than other meta-analytic estimates of psychotherapy dropout in civilian populations (e.g., 20%, Swift & Greenberg, 2012).

To better understand why dropout rates may be elevated in military populations, qualitative and quantitative efforts have investigated potential reasons and risk factors for prematurely terminating. Qualitative studies have highlighted a number of client, therapist, treatment, and logistical barriers identified as reasons for dropping out (Browne et al., 2021; Hoge et al., 2014; Hundt et al., 2020; Naifeh et al., 2016). Among client variables, attitudes such as wanting to handle one's problems on one's own and stigmatizing beliefs about mental health have been reported across studies with military populations (Browne et al., 2021; Hoge et al., 2014; Naifeh et al., 2016). Regarding therapist variables, military populations have reported concerns with the client-therapist alliance as a main reason for terminating, including concerns of their therapist not caring, using a communication style that did not fit with them, and misunderstanding and judging them (Hoge et al., 2014; Hundt et al., 2020). In terms of treatment factors, Service Members also described dropping out of therapy due to perceptions of treatment being ineffective and disliking the treatment options offered (Hoge et al., 2014). Last, logistical barriers, such as a lack of financial resources, insufficient time, transportation issues, and concerns that the content discussed in therapy would not remain confidential from their leadership have been reported across qualitative studies (Browne et al., 2021; Hoge et al., 2014; Naifeh et al., 2016). Together, clients' subjective experiences of prematurely terminating therapy

highlight the need to gain a better understanding of psychotherapy dropout as one potential avenue for improving future psychotherapy experiences for military populations.

Unlike qualitative studies, quantitative findings can provide insight into risk factors for dropout that clients may not consciously highlight as reasons for prematurely terminating (e.g., at-risk populations for dropout). Studies have highlighted a number of client, therapist, treatment, and study variables that have been linked to a higher likelihood of premature termination. Examples of such variables linked with increased rates of dropout include younger client age (Eftekhari et al., 2020; Garcia et al., 2011; Jeffreys et al., 2014; Kehle-Forbes et al., 2016; Maguen et al., 2019; Seal et al., 2010), identifying as male (Harpaz-Rotem & Rosenheck, 2011; Seal et al., 2010), receiving service-related disability benefits among Veterans (Gros et al., 2013; Harpaz-Rotem & Rosenheck, 2011), more negative beliefs about psychotherapy (Jennings et al., 2016), and receiving trauma-focused rather than non-trauma-focused PTSD treatment (Edwards-Stewart et al., 2022). A more extensive literature review of previously identified risk factors for dropout is later provided in Chapter 2.

Taken together, studies thus far have examined the prevalence of and risk factors for psychotherapy dropout. However, there is considerable variation between individual studies. As a result, meta-analytic methods may be useful for obtaining an average dropout rate across studies as well as testing potential moderators and correlates of dropout rates. While two meta-analyses (Edwards-Stewart et al., 2022; Goetter et al., 2015) have examined the average dropout rate in some PTSD studies among military populations, an overall estimate in psychotherapy that includes additional presenting concerns beyond PTSD has yet to be conducted. Thus, the present study aims to address these gaps in the literature by using meta-analytic methods to (1) estimate

the average dropout rate in psychotherapy for a range of military populations and presenting concerns as well as (2) test potential moderators and correlates of dropout rates.

Chapter 2: Literature Review

Dropout Definition

Premature termination occurs when a client decides to terminate therapy without agreement from their therapist as well as without recovering and/or meeting their therapy goals (Hatchett & Park, 2003). Specifically, premature termination from psychotherapy is defined as a client's unilateral decision to drop out of treatment without fully recovering and/or before meeting treatment goals (Hatchett & Park, 2003). Implicit in this definition is that the client makes the decision to end treatment early. This decision is made unilaterally, without consulting with or agreement from the therapist. Also implicit in this definition is that change has not occurred. For many clients, that means they have not seen significant improvements in their symptoms, distress levels, or life functioning. For others, it means they have not reached their treatment goals.

Theory-Based Explanations of Dropout

Several theoretical frameworks have been applied to psychotherapy dropout to conceptualize why some clients prematurely terminate and others do not. These frameworks include an anticipated costs and benefits model (Swift & Greenberg, 2015), the stages of change model (Prochaska & DiClemente, 1982) and the theory of planned behavior (Ajzen, 1991). First, the anticipated costs and benefits model posits that clients evaluate the potential costs (e.g., time, money, stigma, difficult therapeutic work, therapist microaggressions, alliance ruptures) and benefits (e.g., improvement in symptoms, client-therapist bond, external reinforcers) of attending psychotherapy. The decision to terminate may occur when a client perceives and anticipates that the costs associated with attending therapy will outweigh the perceived and anticipated benefits (Swift & Greenberg, 2015).

Such a decision-making process that hinges upon the costs and benefits of psychotherapy is reflected in qualitative research investigating clients' reasons for prematurely terminating. In terms of costs, clients have reported that the time, financial resources, and emotional stress associated with psychotherapy were among their primary reasons for dropping out (e.g., Browne et al., 2021; Hoge et al., 2014; Hundt et al., 2020). Regarding benefits, clients have indicated that a lack of perceived benefit from working with their therapist (e.g., not understanding them, poor alliance) or the treatments selected (e.g., belief that the treatment was not effective) were also reasons for prematurely terminating (Browne et al., 2021; Hoge et al., 2014; Hundt et al., 2020).

Second, the stages of change model posits that individuals progress through several stages in order to implement behavioral change (Prochaska & DiClemente, 1982). These five stages are: (1) *precontemplation* in which one has no intention of changing behaviors, (2) *contemplation* in which one is aware that there are issues and are considering addressing those, (3) *preparation* in which individuals may be intending to implement a change and may make smaller behavioral changes in the near future, (4) *action* in which individuals modify their behavior or experiences to implement change, and (5) *maintenance* in which individuals make steps to ensure that they continue to implement those changes.

Studies have examined how the stages of change model may apply to psychotherapy dropout (e.g., Brogan et al., 1999; Callaghan et al., 2005; Derisley & Reynolds, 2000; Krebs et al., 2018). Specifically, findings suggest that clients who are more ready to change have a greater likelihood of completing treatment (Derisley & Reynolds, 2000; Fleming et al., 2018). Additionally, clients who prematurely terminate tend to be in precontemplation stages (Brogan et al., 1999; Callaghan et al., 2005) and those who successfully terminate therapy tend to be in action stages (Brogan et al., 1999). One meta-analysis examined the link between clients' stages

of change and psychotherapy outcomes using data from 76 studies (Krebs et al., 2018). The authors found that clients who were more ready to change reported better psychotherapy outcomes overall ($k = 76$; $d = 0.41$), including a greater likelihood of completing treatment ($k = 36$; $d = 0.36$). Taken together, these findings suggest that clients who are more ready to implement changes to address their presenting concerns may be most likely to complete psychotherapy.

Third, the theory of planned behavior (Ajzen, 1991) posits that there are three belief types that influence one's intentions to engage in a particular behavior. These belief types include attitudes, perceived behavioral control, and subjective norms. Regarding attitudes, these include a cognitive evaluation of the potential consequences of that behavior. In the context of psychotherapy, these attitudes may encompass beliefs about whether engaging in a particular approach may help alleviate one's presenting problems. In terms of perceived behavioral control, individuals may vary in the degree to which they believe that they have the ability to change a given behavior (i.e., self-efficacy beliefs). For psychotherapy, these beliefs may relate to whether clients believe they are able to complete prescribed treatment components (e.g., exposure work associated with past trauma experiences). Last, subjective norms describe whether individuals believe that others also want them to engage in the target behavior. These beliefs may relate to whether individuals' social supports, such as spouses or employers, encourage them to engage in therapy.

Two studies have examined whether components of the theory of planned behavior model can be used to predict psychotherapy retention (Meis et al., 2021; Zemor & Ajzen, 2014). Specifically, Zemor and Ajzen examined whether general attitudes, perceived behavioral control, and subjective norms predicted intention to complete treatment among a sample of 200

civilian clients attending outpatient substance use treatment. They found that more positive attitudes about therapy and greater perceived control were associated with stronger intentions to complete treatment. They found that beliefs related to subjective norms were not linked with intention to complete treatment (Zemore & Ajzen, 2014). More recently, Meis and colleagues (2021) investigated the degree to which attitudes, perceived behavioral control, and subjective norms were associated with both intentions and actual completion of trauma-focused treatment among 379 Veterans receiving psychotherapy at Department of Veterans Affairs (VA) clinics. Whereas all three types of beliefs were associated with intentions to complete treatment, only more positive attitudes (beliefs that the treatment makes sense to them and meets their needs) and greater perceived control over their participation in treatment were directly associated with reduced premature termination. Future investigation into the role theory of planned behavior model components in explaining psychotherapy completion is needed.

In addition to these three theoretical frameworks, it is possible that behavioral reinforcement principles may also play a role in optimizing therapeutic relationships and treatment engagement (Lejuez et al., 2005; Tsai et al., 2013). Specifically, a reinforcer is a stimulus that increases the probability of a given target behavior. In the context of psychotherapy dropout, this target behavior would entail engagement in psychotherapy tasks. Within the context of therapy, what serves as a reinforcer – or motivation for engaging in treatment – may differ across individual clients (e.g., improved mood, better relationship functioning, reconnecting with valued activities). As such, a key part of establishing reinforcers for psychotherapy engagement may be understanding what changes, goals, or values underlie the client's desire to engage in tasks that would result in this change (Lejuez et al., 2005). It is possible that therapist behaviors – such as praising clients for engaging in difficult tasks or reminding them how completing tasks

will yield desired changes – can serve as reinforcers for treatment engagement. For example, one qualitative study examined how specific therapist behaviors related to bolstering the Veteran’s perceived benefits of attending treatment differentiated Veterans who did and did not complete prolonged exposure therapy (PE) and cognitive processing therapy (CPT; Kehle-Forbes et al., 2022). Specifically, the authors found that Veterans were more likely to complete when their therapists were perceived as their “cheerleaders:” pointing out Veterans’ progress in treatment, praising them for completing difficult sessions, and leading discussions of why Veterans were engaging in difficult therapy work (Kehle-Forbes et al., 2022). In other words, these therapists provided verbal reinforcement for completing challenging sessions and specifically elicited reminders of the Veterans’ anticipated benefits of completing difficult tasks.

Findings from another study suggest that external reinforcers may also bolster treatment retention (Schacht et al., 2017). In this randomized controlled trial of PE, the authors randomized 58 civilian clients with PTSD and an opioid use disorder to either receive or not receive financial incentives for attending PE sessions (Schacht et al., 2017). Those clients randomized to receive incentives were eligible for a \$30 voucher for attending the first session, and the value of the voucher increased by \$10 for each additional session. When clients missed appointments, they were not eligible for a voucher for that visit and the value of their next voucher for session attendance was reduced to \$30. Overall, the authors found that clients randomized to the incentives condition completed more exposure sessions, reported better treatment outcomes, and were more likely to successfully terminate treatment. Taken together, considering clients’ perceptions of the anticipated benefits of treatment and highlighting their efforts to pursue those benefits may provide important insights into why clients drop out and how to optimize future treatment retention.

Dropout Measurement

Although the problems associated with dropout are well-known, there has been some disagreement in the field about the best way to operationalize or measure dropout. Several methods have been used to assess dropout from psychotherapy, including failure to complete a minimum number of psychotherapy sessions (Hoge et al., 2014) or duration of time in treatment (Frayn, 1992); missing a set number of sessions (Hatchett et al., 2002; Kolb et al., 1985); a therapist judgment of dropout (Chisholm et al., 1997; Hannan et al., 2005; Reis & Brown, 2006); and failure to achieve clinically significant or reliable change (Barkham et al., 2006; Cahill et al., 2003; Swift et al., 2009).

The duration-based methods for operationalizing dropouts were among the earliest used in the field. Examples of these methods include identifying any client who completes less than a certain number of treatment sessions (e.g., six sessions) or a certain amount of time in treatment (e.g., two months) as a premature terminator. More recently, researchers have based this criterion on completion of a treatment protocol (e.g., failure to complete at least 75% of the sessions in the protocol would be considered a dropout). These methods are thought to provide more easily obtainable data and produce more reliable estimates across studies (Swift et al., 2009). However, there are several limitations associated with the duration-based approaches. First, they do not directly assess whether the therapist was consulted or agreed with the timing of the termination. Second, there is some disagreement among researchers regarding what number of sessions are required to achieve successful psychotherapy outcomes (e.g., Barkham et al., 2006; Lambert, 2007; Swift et al., 2009). On the one hand, Lambert (2007) indicated that an average of 18 sessions are required to achieve improvement on psychotherapy outcome measures. On the other hand, results from another study suggested that approximately half of all clients achieve reliable

and clinically significant changes in outcomes after only one or two psychotherapy sessions (Barkham et al., 2006). The large body of research investigating this disagreement suggests that, although there may be an average number of sessions that might be necessary for the average client to recover, individual clients recover along their own trajectories at their own speed (e.g., Baldwin et al., 2009; Falkenström et al., 2016; Kivlighan et al., 2019; Owen et al., 2016; Reese et al., 2011; Schuler et al., 2021). Therefore, it is difficult to obtain a reliable estimate of the number of sessions or time required to achieve treatment goals. Last, these methods could erroneously categorize a client who did not recover, but attended the established number of sessions, as having completed treatment.

Relatedly, other studies have leveraged a pre-determined number of missed sessions to establish whether clients prematurely terminated treatment (Hatchett et al., 2002; Kolb et al., 1985). For example, Hatchett and colleagues defined premature termination as occurring when a client (1) missed a scheduled appointment and (2) unilaterally terminated therapy. Similar to duration-based methods, this method provides more easily obtained data and are thought to produce more reliable estimates across studies (Swift et al., 2009). However, operationalizing premature treatment termination using a pre-determined number of missing sessions may also misclassify clients who were unable to attend several appointments, but then later returned to treatment. Last, this method is similar to duration-based methods in that this method does not directly assess whether therapists were consulted in the decision to terminate therapy.

Other studies have utilized therapist judgement to determine whether or not a client prematurely terminated psychotherapy (e.g., Chisholm et al., 1997; Hannan et al., 2005; Reis & Brown, 2006). Specifically, this entails asking therapist to identify each client as either completing treatment or prematurely terminating treatment. One advantage of this method is that

it directly addresses whether the client's decision to terminate treatment was unilateral, a core component of the definition of psychotherapy dropout (Hatchett & Park, 2003). Compared to the operationalizations based on the number of sessions attended or missed, the therapist judgement operationalization is less likely to misclassify individuals who achieved recovery within a short time frame or missed a series of appointments but then resumed psychotherapy. In line with the increased sensitivity of this approach, meta-analytic findings indicate that methods relying on therapist judgment produce premature termination estimates that are higher than estimates obtained using other methods (Swift & Greenberg, 2012). While these high rates may be explained by sensitivity to client dropout, it is also possible that the therapist judgment operationalization overestimates dropout. For example, therapists are often poor judges of actual treatment progress (Garfield, 1994; Hannan et al., 2005; Westmacott et al., 2010) or treatment satisfaction (Westmacott et al., 2010) for their clients. It is possible that a client initiating therapy who fails to return to their next session may have achieved considerable relief after meeting with a therapist who provides validation and psychoeducation about their presenting concerns. In this case, a therapist may perceive this client as having dropped out (e.g., did not complete set number of sessions of a psychotherapy protocol), even though the client achieved considerable symptom relief from their perspective. This limitation of therapist judgment is an important consideration given that making inadequate progress on treatment goals is an integral component of defining premature termination (Hatchett & 2003)

As alternatives to the methods reviewed thus far, Hatchett and Park (2003) introduced the clinically significant and reliable change methods for operationalizing premature termination. Clinically significant change criteria (Jacobson et al., 1984; Jacobson & Truax, 1991) requires that, by the end of treatment, clients score within the normal range on a standardized outcome

measure and experience a degree of change that is reliable (i.e., greater than measurement error) in order to be considered recovered or a treatment completer. Reliable change criteria only requires that by the end of treatment the client demonstrates a degree of change that is reliable in order to be considered a treatment completer. The clinically significant and reliable change methods therefore ensure that clients classified as having prematurely terminated treatment have not discontinued treatment because they improved. As a result, use of either the clinically significant change or reliable change operationalizations has been strongly recommended by researchers (Hatchett & Park, 2003; Swift et al., 2009; Swift & Greenberg, 2015). Notably, these methods are frequently used for outcome monitoring in clinical trials and naturalistic settings (e.g., Ogles et al., 2001) and so using them to assess dropout could be easily implemented.

Although the clinically significant and reliable change methods do have their advantages, these methods are not without limitations. For example, the clinically significant change operationalization assumes that all clients will achieve clinically significant change after completing psychotherapy, which is not necessarily the case (Bradley et al., 2005; Cahill et al., 2003). Thus, compared to reliable change methods (focusing on the degree of change only), clinically significant change methods may underestimate the number of individuals who terminate treatment after reporting experiencing some degree of improvement (Cahill et al., 2003). Specifically, Cahill et al. found a large discrepancy in dropout estimates between clients unilaterally terminating treatment with reliable improvement (70%) and those unilaterally terminating treatment with clinically significant change (13%). Additionally, clinically significant change may not be appropriate for some outpatient psychotherapy samples. Hatcher and Park (2003) noted that clients who attend outpatient psychotherapy may have baseline scores

that are already within a normal range; therefore, outpatient clients may be less likely to meet the criteria for clinically significant change as a result.

Taken together, studies have varied in how they assess dropout and the degree to which those measurement strategies have accounted for core components of Hatchett and Park's (2003) definition of dropout. There is a growing consensus that duration-based methods should not be used to operationalize the construct and a movement toward therapist-judgment and clinically significant/reliable change methods (Swift & Greenberg, 2015). In addition, some have suggested that client-based methods be developed (Swift & Greenberg, 2015), but these types of methods have yet to be tested. Directly pertinent to this review, the specific measurement strategies used to assess dropout have been shown to influence estimates of dropout (Swift et al., 2009; Swift & Greenberg, 2012), and thus, measurement strategy is an important consideration when evaluating the prevalence of and risk factors for psychotherapy dropout.

Dropout in Civilian Populations

Dropout Prevalence

There is substantial variability in dropout rates among civilian populations, which range from 0% to 74% (Swift & Greenberg, 2012). This variability is an important limitation of utilizing individual studies to ascertain overall dropout rates, as it is challenging for therapists, clinics, mental health systems, and researchers to interpret how differences between studies may influence those estimates. Instead, meta-analytic methods enable researchers to obtain an overall prevalence estimate across studies as well as identify risk factors associated with dropout rates (e.g., client characteristics, treatment variables).

Using these methods, one meta-analysis found that clients assigned to medication management for mental health were 1.20 times more likely to drop out than clients assigned to

receive psychotherapy (Swift et al., 2017). Thus, dropout may be less frequent in psychotherapy as compared to medication management. In terms of psychotherapy dropout specifically, an early meta-analysis examining premature termination in child, adolescent, and adult clients ($k = 125$ studies) found that nearly half dropped out prematurely (Wierzbicki & Pekarik, 1993). However, a more recent meta-analysis of adult psychotherapy that included over five times the number of studies ($k = 669$; Swift & Greenberg, 2012) found a weighted average of 19.7% in terms of the proportion of clients who dropped out of therapy. Similar numbers (around 20% dropout) have since been seen in a number of subsequent meta-analyses (Cooper & Conklin, 2015; Fernandez et al., 2015; Lewis et al., 2020; Swift et al., 2017). Taken together, findings suggest that fewer clients drop out of psychotherapy compared to medication management (Swift et al., 2017) and fewer clients are dropping out of psychotherapy than what was previously thought (Wierzbicki & Pekarik, 1993); however, one in five clients are choosing to prematurely terminate suggesting that there is still room for improvement in terms of mitigating psychotherapy dropout.

Risk Factors for Dropout

One of the first steps to mitigating psychotherapy dropout is to gain an understanding of when it is most likely to occur. To better identify clients who may drop out prematurely, studies have examined a range of client, therapist, treatment, and research variables as risk factors for dropout in civilian populations.

Client Variables. Meta-analyses have examined the role of a range of client variables, including age, race and ethnicity, gender, education, income, marital status, employment, and presenting problems. Regarding age, younger adult clients were more likely to drop out of psychotherapy in one meta-analysis (Swift & Greenberg, 2012), but others found no link (Gersh et al., 2017; Wierzbicki & Pekarik, 1993). In terms of race and ethnicity, whereas one meta-

analysis found that clients who identified as Black or another racial/ethnic minority were more likely to drop out as compared to their counterparts who identified as White (Wierzbicki & Pekarik, 1993), another meta-analysis found no association (Swift & Greenberg, 2012). Further, Swift and Greenberg also found that studies with fewer female clients reported more dropout, although gender was not linked to dropout in other meta-analyses (Gersh et al., 2017; Lewis et al., 2020; Wierzbicki & Pekarik, 1993). Whereas lower levels of education (Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993) and income (Wierzbicki & Pekarik, 1993) have been linked with more dropout, marital status (Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993) and employment status (Swift & Greenberg, 2012) have not. Last, Swift and Greenberg also found higher dropout rates among studies of clients with eating and personality disorders as compared to studies of clients with anxiety disorders, mood disorders, psychotic disorders, and trauma symptoms.

Therapist Variables. In comparison to client variables, less is known about the role of therapist variables. Swift and Greenberg (2012) found that studies utilizing more trainee therapists have found higher dropout rates than those utilizing fewer trainees. However, they found that therapist gender, age, and race were not linked with dropout. Findings also suggest that higher dropout rates are associated with process variables that are associated with therapist actions and attitudes such as weaker therapeutic alliances, providing less concrete support, and being less emotionally supportive (Roos & Werbart, 2013; Sharf et al., 2010).

Treatment Variables. The roles of treatment variables such as orientation, type, format, sessions completed, and setting have also been examined. In terms of orientation, Swift and Greenberg (2012) found similar rates of dropout among cognitive-behavioral, psychodynamic, solution-focused, integrative, and other treatments. However, studies examining the link between

treatment approaches used for addressing a specific presenting problem (e.g., depression, bereavement) have yielded mixed results (Edwards-Stewart et al., 2022; Hembree et al., 2003; Imel et al., 2013; Lewis et al., 2020; Swift & Greenberg, 2014). One systematic review found that different trauma treatments (e.g., exposure therapy, cognitive therapy, stress inoculation training [SIT], and eye movement desensitization and reprocessing [EMDR]) did not differ in terms of dropout rates (Hembree et al., 2003). Another meta-analysis, however, found that PTSD treatments that focus on clients' traumatic memories (e.g., PE, CPT) result in higher dropout rates than present-centered therapy (PCT), which does not focus on trauma memories (Imel et al., 2013). Consistent with these findings, one recent meta-analysis found that trauma-focused treatments resulted in higher dropout rates than non-trauma-focused treatments (Lewis et al., 2020). Further, Swift and Greenberg (2014) found that treatments utilizing an integrative approach resulted in lower rates of dropout than other approaches for both PTSD and depression – and that treatments that included an exposure component had the highest dropout rates for PTSD. They also found that dialectical behavior therapy resulted in the lowest rates of dropout for eating disorders (Swift & Greenberg, 2014).

Regarding treatment format, interventions that used telehealth (Fernandez et al., 2015), non-manualized approaches (Swift & Greenberg, 2012), and an unspecified number of sessions (Swift & Greenberg, 2012) reported more dropout than interventions that used in-person, manualized, and time-limited approaches, respectively. Whereas utilizing individual therapy only, group therapy only, and combined individual and group therapy result in similar dropout rates among studies with a range of presenting problems (Swift & Greenberg, 2012), clients were more likely to complete individual PTSD treatment services than group PTSD treatment services in another study (Imel et al., 2013). However, another recent meta-analysis of PTSD treatment

services did not find a difference in dropout rates among individual and group formats (Lewis et al., 2020). Studies have also found that clients are at greater risk of dropping out earlier in treatment (Fernandez et al., 2015; Imel et al., 2013), although another study did not find this link (Gersh et al., 2017). Thus, likelihood of dropping out of psychotherapy may differ by treatment format and the number of sessions completed.

In terms of treatment setting, clients receiving outpatient services have higher dropout rates compared to inpatient services (Fernandez et al., 2015; Swift & Greenberg, 2012), and clients receiving services at university-based outpatient clinics have particularly high dropout rates (Swift & Greenberg, 2012). However, one meta-analysis found no differences in dropout across settings (Wierzbicki & Pekarik, 1993).

Research Variables. Research methods may also influence the dropout rates that are observed. Although rates may be similar between randomized controlled trials (RCTs; i.e., studies in which participants are randomly assigned to an active treatment group or a control group) and non-RCTs (Fernandez et al., 2015), studies evaluating whether treatments were effective in more applied settings (i.e., effectiveness studies) reported significantly higher rates of dropout than studies utilizing more stringent methodologies to evaluate treatment effectiveness (i.e., efficacy studies; Swift & Greenberg, 2012). Studies identified through keyword searches also had higher dropout rates than studies identified through searching specific journals and previous meta-analyses (Swift & Greenberg, 2012). As reviewed above, dropout rates have been found to differ depending on the way that dropout is operationally defined (e.g., minimum number of sessions completed, therapist judgment; e.g., Hatchett & Park, 2003; Swift et al., 2009; Swift & Greenberg, 2012). Last, the frequency of dropout tends to be similar among

articles that vary in study quality (Gersh et al., 2017) and publication year (Swift & Greenberg, 2012).

Costs of Dropout in Civilian Settings

Research suggests that prematurely terminating before recovering and meeting a client's treatment goals may have a number of costs to the client, therapist, clinic, and community. For clients, dropping out is associated with poorer treatment outcomes (e.g., Cahill et al., 2003; Straud et al., 2019; Swift et al., 2009). Additionally, dropout may adversely affect therapists and clinics due to therapist demoralization (Piselli et al., 2011) as well as a loss of revenue (Barrett et al., 2008). Further, dropping out not only results in an underutilization of therapist time due to missed appointments, but also prevents other clients in need from receiving services (Barrett et al., 2008). On top of this, dropout also shifts the burden of support for mental health issues to the client's support system (e.g., friends, family) and results in continued functional impairment that can impact other domains of the client's life (e.g., poor work-related performance; Barrett et al., 2008; Swift & Greenberg, 2015). Together, these costs underscore the need to better understand psychotherapy dropout.

While there are potentially negative consequences associated with psychotherapy dropout, there may also be positive consequences for individual clients. For example, clients may prematurely terminate due to concerns that treatment is not working for them and/or that they have a poor working relationship with their therapist (e.g., Hoge et al., 2014). In these cases, dropping out may reflect clients advocating for themselves, and in turn may benefit from later seeking psychotherapy from a therapist that they feel is a better fit. One study explored whether Veterans who dropped out and later returned to complete a second course of therapy experienced similar improvements in their PTSD symptoms as Veterans who completed their first course of

therapy (Schumm et al., 2017). They found that Veterans from both groups achieved similar improvements in their PTSD symptoms (Schumm et al., 2017). However, this pattern of benefiting from psychotherapy after dropping and returning to therapy may not apply to all clients. For example, this pattern may reflect interpersonal regulation challenges (e.g., borderline personality disorder, trouble managing anger reactions). Nevertheless, it may be that some clients benefit from advocating for themselves by prematurely terminating, and may achieve positive treatment outcomes when they later return to therapy.

Summary

In conclusion, dropout rates widely vary between individual studies, but meta-analytic findings suggest that 1 out of 5 clients drop out of psychotherapy overall. Several variables have been linked to increased dropout that may explain variability between studies, including: younger age, racial and ethnic minority status; male gender; lower levels of education; lower incomes; eating and personality disorders; trainee therapists; poorer therapeutic alliances; therapist provision of less concrete support; less emotionally supportive therapists; specific treatments for PTSD, depression, and eating disorders; telehealth interventions; non-manualized approaches; treatments with an unspecified number of sessions; clients who have completed fewer sessions; and certain treatment settings.

Dropout in Military Populations

Although dropout has been extensively studied in civilian populations, it is unclear how findings from such populations may generalize to dropout in military populations. Specifically, there are a number of cultural variables that may influence how military populations differentially engage in psychotherapy compared to their civilian counterparts, including premature termination. For example, military populations may leverage different language and

acronyms than in civilian populations, such as a “permanent change of station” (PCS) that refers to receiving orders to relocate to a different duty station (Reger et al., 2008). Understanding these linguistic differences may be important for facilitating clients’ perceptions of the therapist as competent to help them navigate their presenting concerns. Indeed, perceptions of incompetence have been previously provided as a reason for dropping out among Service Members (Hoge et al., 2014). There are also aspects of military norms that are clearly influenced by law (e.g., limited privacy for Service Members) and organizational policy (e.g., disclosing a non-deployable mental health condition to leadership; Meyer et al., 2016). These norms may be critical for therapists to address (e.g., reviewing informed consent and the limits of confidentiality) to foster clients’ willingness to disclose relevant information and participate in psychotherapy. Indeed, concerns about therapy confidentiality due to such legal and organizational factors have been cited as reasons for prematurely terminating therapy (Hoge et al., 2014). Taken together, such differences in military cultural variables make it difficult to determine the degree to which research examining dropout prevalence and risk factors from civilian populations may be generalizable to military populations.

In addition, the intersectionality between military cultural variables and other potential dropout risk factors (e.g., client variables like age and gender identity) also makes it difficult to determine the generalizability of findings from civilian populations. For example, experiencing and talking about strong emotions that frequently accompany combat experiences (e.g., guilt, shame, grief) may be even more difficult for male-identified members of military populations due to military cultural scripts about managing emotions that are amplifications of already-existing Western cultural scripts discouraging the expression of emotion (Danforth & Wester, 2014). Thus, it is unclear whether male-identified members of military populations may

differentially engage in psychotherapy (e.g., greater difficulty identifying emotions, more hesitancy to trust a therapist with their emotional experiences) compared to their civilian counterparts. As another example, legislation and cultural norms associated with the recent “Don’t Ask Don’t Tell” era fostered considerable stigma surrounding those who identify as lesbian, gay, bisexual, transgender, or another diverse sexual orientation and/or gender identity (LGBTQ+; Stebnicki et al., 2015). In turn, concerns about confidentiality as well as therapist and/or clinic staff perceptions of LGBTQ+ identities may make it difficult for clients who identify as such to disclose related experiences that may be adversely affecting their mental health (e.g., LGBTQ+-specific microaggressions from fellow unit members or Veterans). Thus, the intersectionality between military cultural variables and other aspects of clients’ identities (e.g., age, gender identity) also makes it unclear how findings from civilian populations may generalize to military populations. As a result, a separate body of research specifically examining dropout prevalence and risk factors among military populations is needed.

Clients and Therapists among Military Populations

One consideration for conceptualizing dropout among military populations is the setting in which Service Members and Veterans receive services. These settings include healthcare systems within the Department of Defense (DoD) and Department of Veterans Affairs (VA). A description of the Service Members, Veterans, and therapists within these systems is provided below.

Department of Defense (DoD) Services. Although specific requirements vary by branch, Service Members have to meet certain age, weight, health, mental health, and aptitude test requirements in order to serve (Amara & Hendricks, 2016). Of those that do and then become Service Members, they tend to be cisgender male, married, non-Hispanic White, and

enlisted personnel (Amara & Hendricks, 2016; Riddle et al., 2007). Most Service Members are between 25 and 44 years old (Riddle et al., 2007), where the average age is approximately 29 years old (Amara & Hendricks, 2016). Active-duty Service Members, some reserve component Service Members, their families, and retirees are eligible for care through the DoD's military health system. A large study of military health system clinic visits ($n = 68,552,885$) in 2015 and 2016 found that the system largely serves 25-44 year-olds, cisgender men (60% of the sample), and active-duty Service Members (Deerin et al., 2017).

The DoD employs a range of mental health professionals to deliver services within the military health system. Service providers include psychologists, social workers, psychiatrists, nurses with specialized mental health training, other licensed providers, and some trainees supervised by licensed staff (United States [U.S.] Government Accountability Office, 2015). These professionals may themselves be a Service Member, DoD civilian employee, or contractors. Overall, there is a shortage of providers within DoD settings, which has been attributed to repeated deployments among military providers, high rates of turnover, less competitive compensation packages for civilian providers, and the tendency for military treatment facilities to be located in rural rather than urban locations (U.S. Government Accountability Office, 2015).

Little is known about the demographic composition of providers within DoD systems, and to this writer's knowledge, demographic characteristics for DoD providers has not been published. This gap may be due to the smaller size of the DoD mental health provider workforce (U.S. Government Accountability Office, 2015) compared to the much larger size of the VA mental health provider workforce (U.S. Government Accountability Office, 2022). Comparatively fewer psychotherapy research studies have been conducted with Service

Members (which offer one potential source of information about therapists' characteristics) as opposed to Veterans (e.g., Goetter et al., 2015). Additionally, many studies that leverage existing data routinely collected in medical records may not have ready access to provider demographic data. Combined, these factors may have contributed to the dearth of knowledge in terms of therapist characteristics in DoD settings.

VA Services. After separating from the military, Veterans have to meet specific requirements to access services provided through the VA healthcare system. Veterans must have served for more than two years (unless one is medically discharged due to a service-related condition) and have been honorably discharged in order to qualify for VA care. Among Veterans who do qualify, the VA may prioritize the delivery of services to recent combat Veterans, Veterans who have lower incomes, or those who have a service-connected disability (e.g., combat-related PTSD, military sexual trauma [MST], medical injury sustained during service).

Several studies have explored the demographic characteristics of Veterans who seek services through the VA. The Veteran population is overall more likely to be employed, living above the poverty line, have a high school degree, and have medical insurance compared to civilians without a history of military service (Eibner et al., 2016). Most Veterans tend to be cisgender male, and one study found that over 90% of Veterans identified as such among a large sample of 654,903 Veterans using the VA system (Harrington et al., 2019). On average, Veterans were 65 years old and were primarily (75%) non-Hispanic White in this study (Harrington et al., 2019).

Veterans may receive mental health care from a range of professionals within the VA, including psychiatrists, psychologists, social workers, licensed professional mental health counselors, marriage and family therapists, and trainees from these respective disciplines (U.S.

Government Accountability Office, 2022). To-date, less is known about the demographic composition of mental health professionals serving in VA settings. One estimate of the average therapist age in a study of 20,657 therapists who delivered psychotherapy for PTSD in a VA setting was 46.15 years old (Shiner et al., 2017). In that study, the authors found that approximately 60% of mental health professionals identified as female. Nevertheless, there is a similar dearth of knowledge in terms of therapist characteristics among VA providers as there is among DoD providers.

Dropout Prevalence

Studies have separately examined dropout among Service Members and Veterans. Prevalence estimates among individual studies of Veterans range from 22% (Niles et al., 2018) to 96% (Browne et al., 2021), whereas dropout in Service Members may range from approximately 22% (Jennings et al., 2016) to 71% (Nugent et al., 2022). Additionally, findings from one large study of 4,556 clients ($N = 21,885$ therapy visits) seeking therapy at Army military treatment facilities suggest that Service Members may be more likely to prematurely dropout compared to Veterans and military dependents (e.g., spouses, children; Nugent et al., 2022). However, it is unclear whether differences in dropout rates would extend to other settings (e.g., other service branches, VA settings).

Taken together, the overall dropout rate in military populations remains unknown. Given the considerable variability in study dropout rates and methods, meta-analytic methods may be particularly helpful for ascertaining an overall dropout rate while controlling for potentially confounding study variables (e.g., sample size). To-date, only two small meta-analyses (Edwards-Stewart et al., 2022; Goetter et al., 2015) have ascertained an overall estimate of dropout in military populations receiving PTSD treatment. Specifically, Goetter and colleagues

examined effectiveness and efficacy studies ($k = 20$) of psychotherapies for trauma treatment among combat veterans from Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) and found an average dropout rate of 36%. More recently, Edwards-Stewart and colleagues (2022) examined only efficacy studies for PTSD treatment among Service Members and Veterans ($k = 26$), and found an average dropout rate of 24%. The authors also found no differences in dropout rates between Service Members and Veterans, although it is possible that these null findings are related to limited power due to including only four studies that focused on Service Members. It is unclear why there was a discrepancy in dropout rates reported between those two meta-analyses. However, it is possible that differences in rates could be due to the inclusion of effectiveness studies, as they were included by Goetter et al. (2015) but excluded Edwards-Stewart et al. (2022). Given that effectiveness studies are associated with higher dropout rates (Swift & Greenberg, 2012), the exclusion of effectiveness studies by Edwards-Stewart et al. may have led to an underestimate of psychotherapy dropout. Nevertheless, the degree to which findings may generalize to psychotherapy for military populations beyond PTSD treatment is unknown.

Risk Factors for Dropout

Studies have explored risk factors for dropout in military populations. The following sections discuss risk factors related to client, therapist, treatment, and study variables.

Client Variables. Studies have explored whether several client variables are related to psychotherapy dropout in military populations, including client diversity, service-related characteristics, and pathology. Studies have examined the link between diversity variables and dropout in military populations, including age, gender, race/ethnicity, marital status, education, socioeconomic status (SES), and service accessibility. First, some have found that younger

Veterans were more likely to drop out of PTSD treatment compared to older Veterans (Eftekhari et al., 2020; Garcia et al., 2011; Jeffreys et al., 2014; Kehle-Forbes et al., 2016; Maguen et al., 2019; Seal et al., 2010), although others have not (Gros et al., 2013; Harpaz-Rotem et al., 2014; Niles et al., 2018). Among Service Members, findings from one study suggest that younger age is linked with higher dropout risk (Nugent et al., 2022), but another study found no link (Jennings et al., 2016). It is unclear why younger age appears to be linked to increased dropout across the majority of studies examining this link among Veterans. One explanation is that other variables that tend to correlate with age, such as rank, combat service era (e.g., Vietnam versus OEF/OIF Veterans) may better account for this relationship. While that hypothesis remains largely untested, some have found that the age-dropout link persists even after controlling for service era (Harpaz-Rotem & Rosenheck, 2011; Jeffreys et al., 2014). From a developmental perspective, it is possible that younger Service Members and Veterans may be experiencing more life events (e.g., juggling employment, family-related responsibilities such as childcare) that are qualitatively reported as reasons for dropping out among military populations (e.g., busy with work, time demands; Hoge et al., 2014; Naifeh et al., 2016). Given that younger age is meta-analytically linked to more dropout in civilian psychotherapy as well (Swift & Greenberg, 2012), both civilian- and military- related variables may influence the age-dropout link.

Less is known about the role of other diversity variables. Dropout rates may be higher among male compared to female Veterans (Harpaz-Rotem & Rosenheck, 2011; Seal et al., 2010), although others have found no association (Edwards-Stewart et al., 2022; Kehle-Forbes et al., 2016). Studies of Service Members have found no difference in dropout rate by gender (Jennings et al., 2016; Nugent et al., 2022). It is unclear why there are mixed findings. One explanation may be that male-identified members of military populations are particularly

expected to conform to the masculine scripts regarding selective expression of emotions (e.g., hiding guilt, shame and grief; expressing emotions through anger) that are commonly found in military cultures (Danforth & Wester, 2014). These scripts may serve as barriers to engaging in cognitive-behavioral treatments, many of which emphasize the identification, feeling, and expression of emotions. As an example, PE for treating trauma (Foa et al., 1991) theorizes that PTSD occurs when individuals do not allow themselves to emotionally process those experiences after a traumatic event has occurred. PE therefore aims to alleviate PTSD symptoms by requiring clients to emotionally experience their trauma through exposure exercises where one is reminded of and/or relives their trauma experiences. Thus, it may be that those endorsing gender scripts regarding emotion regulation may find it particularly difficult to engage in such treatments.

In terms of the role of race and ethnicity, one study found that individuals were more likely to drop out if they identified as Hispanic compared to an “Other” race or ethnicity, or identified as “Other” compared to African American (Harpaz-Rotem & Rosenheck, 2011). Another study also found that clients identifying as African American were more likely to complete PE and CPT (Maguen et al., 2019). However, others have found no association between race and/or ethnicity and dropout (Garcia et al., 2011; Gros et al., 2013; Harpaz-Rotem et al., 2014; Jennings et al., 2016; Nugent et al., 2022; Seal et al., 2010). Factors potentially driving these mixed findings remain unknown. One possibility may be that there are aspects of individuals’ experiences associated with race and ethnicity that better account for experiences in therapy than the specific label individuals use to describe themselves. For example, civilian clients have reported experiencing race- or ethnicity-related messages from therapists that are invalidating, insulting, and/or discriminatory (Owen et al., 2014). It may therefore be that these experiences of invalidating or discriminatory experiences – rather than the label one ascribes to –

may better account for negative experiences in therapy that potentially lead to dropout.

Further, one study found that married Veterans were more likely to complete PE and CPT sessions (Maguen et al., 2019), but marital status has not been linked with dropout in other studies (Gros et al., 2013; Harpaz-Rotem et al., 2014; Jennings et al., 2016; Seal et al., 2010). Reasons underlying mixed findings regarding marital status are unknown. It is possible that there are underlying behaviors occurring in the context of committed relationships that facilitate therapy retention. Findings from Meis and colleagues (2019) suggest that Veterans in close relationships characterized by low levels of interpersonal conflict and more encouragement to face trauma-related distress were the most likely to complete a course of PE or CPT. It may be that these potential mechanisms – low relationship strain and strong social support for engaging in therapy – are protective and facilitate therapy retention in individuals in committed relationships.

Other sources of social support beyond committed relationships may also be an important consideration regarding treatment engagement. For example, active-duty Service Members and families can be close-knit due to military cultural factors that encourage cohesion within military communities, shared experiences with navigating difficult life transitions (e.g., frequent moving, uncertainty associated with navigating deployment cycles, bereavement), and sharing community spaces geographically (e.g., living on base and using similar resources). Social support is also an important consideration for Veterans, as many report challenges with feeling disconnected from others after their separation, which is meta-analytically linked with more severe PTSD and depression symptoms (Pietrzak et al., 2010).

Across both Service Member and Veteran samples, it is possible that social support can play an important role in facilitating treatment engagement. For example, fellow Service

Members may provide validation and encouragement to seek care. This encouragement could in turn facilitate treatment engagement. Harpaz-Rotem and colleagues (2014) investigated the link between such social supports, therapy initiation, and treatment engagement among Veterans. The authors found that greater unit support was linked with a greater likelihood of initiating therapy, although leadership and general military organizational support were not. However, they found no link between post-deployment social support and the number of therapy visits completed. The authors also found no link between social support types and treatment completion (Harpaz-Rotem et al., 2014). Other studies have yielded equivocal findings related to the link between dropout and social support among Service Members (Jennings et al., 2016) and in Veterans (Valenstein-Mah et al., 2019). It is unclear why these studies have yielded null findings. It is possible that there are specific behaviors or types of social support that may be more important for treatment engagement than social support more broadly. These specific behaviors could include encouragement to continue with difficult therapy work, sharing one's own experiences with psychotherapy work, or providing validation and recognition for having mental health symptoms and seeking psychotherapy. Another explanation may be that the source of social support (e.g., an individual the Service Member or Veteran identifies as an integral member of their social network) moderates the link between receiving social support and treatment engagement. Nevertheless, further investigating how specific aspects of social support may yield important insights into how to optimize treatment engagement for both Service Members and Veterans.

In terms of SES, one study found a link between lower incomes and greater dropout (Harpaz-Rotem & Rosenheck, 2011). Additionally, both Veterans (Browne et al., 2021) and Service Members (Naifeh et al., 2016) have reported financial barriers to completing treatment. Regarding accessibility, Veterans (Browne et al., 2021; Hoge et al., 2014) have cited

transportation as a barrier to attending services, and living in rural areas (Harpaz-Rotem & Rosenheck, 2011; Maguen et al., 2019) or farther away from services (Seal et al., 2010) have also been linked to increased dropout risk. Regarding education, Veterans with lower levels of education were more likely to drop out in one study (Harpaz-Rotem et al., 2014); however, among Service Members, obtaining a college degree was not linked with dropout in another study (Jennings et al., 2016). A meta-analysis examining RCTs for PTSD treatments in military populations found no link between education level and psychotherapy dropout (Edwards-Stewart et al., 2022). Taken together, some aspects of SES may be important barriers to completing treatment among military populations, such as financial barriers and greater geographical distance to services.

Beyond diversity variables, several service variables have been evaluated as risk factors, including rank, branch of service, component, combat experiences, service transitions, and service-related disability benefits. In terms of rank, one large study of Veterans ($n = 49,425$) found no link between rank and dropout risk (Seal et al., 2010), but another study found that Veterans who were officers were more likely to complete PE and CPT for PTSD compared to those who were enlisted (Maguen et al., 2019). It is unknown why these findings are mixed. A possible explanation may be that officers tend to have more educational experiences than enlisted personnel, and one study found that higher levels of education were protective against dropout (Harpaz-Rotem et al., 2014).

Further, Army Veterans were more likely than Navy, Air Force, and Marine Veterans to attend one or more sessions; however, all branches were equally likely to complete nine or more sessions (Seal et al., 2010). Overall, little is known about dropout by service branch, and future research addressing this gap may be an important consideration. While there are some shared

cultural experiences among service branches, there are some unique cultural differences and occupational requirements between service branches (Strom et al., 2012). These differences may in turn impact mental health. For example, one study of 16,699 active-duty Service Members found that Marines were the most likely to endorse alcohol and tobacco use as part of military culture and least likely to report that their leaders disapproved of substance use (Meadows et al., 2018). In turn, Marines reported the highest levels of hazardous drinking and tobacco use in this study (Meadows et al., 2018). However, the degree to which differences in cultural beliefs between services branch impacts psychotherapy engagement remains unknown.

Regarding service era, some have found no link with dropout (Jeffreys et al., 2014; Niles et al., 2018), but others found that OEF, OIF, and Operation New Dawn (OND) Veterans were more likely to drop out of treatment compared to Vietnam Veterans without controlling for age (Harpaz-Rotem & Rosenheck, 2011; Kehle-Forbes et al., 2016). However, after Harpaz-Rotem and Rosenheck controlled for age, dropout likelihood for those groups changed: OEF and OIF Veterans completed more PTSD treatment visits than Vietnam Veterans. Additionally, they found that Korean Veterans completed fewer PTSD treatment visits than Vietnam Veterans (Harpaz-Rotem & Rosenheck, 2011). Taken together, the link between service era and dropout remains unclear. The correlation between age and service era also serves as a confound variable in understanding the role of service era and dropout, particularly given that many studies have found that younger Veterans and Service Members may be less likely to complete treatment (e.g., Eftekhari et al., 2020; Garcia et al., 2011; Nugent et al., 2022). There are also unique aspects associated with specific service eras that may have impacted each cohort's experiences with mental health. For example, PTSD was not yet a formally recognized diagnosis during the World War and Korean War eras. Modern-day cognitive-behavioral approaches that are now

widely disseminated within DoD and VA systems were just undergoing development in the 1970's and 1980's (Hollon & DiGuiseppe, 2011). Thus, it is possible that differences in how mental health and psychotherapy has been conceptualized over time and across service eras may influence attitudes towards and engagement in psychotherapy.

Regarding the role of military component, active-duty Veterans were as likely to drop out as those who served in the reserve component (e.g., National Guard) in some studies (Harpaz-Rotem et al., 2014; Seal et al., 2010); however, another study found that those in the reserves were less likely to drop out (Maguen et al., 2019). It is unknown why these findings are mixed. However, determining a potential link between dropout and component may be an important consideration. Members of the active component serve full-time in DoD settings, where they are embedded with other Service Members who may serve as sources of social support. Additionally, on base, there are often mental health services available through nearby military treatment facilities. However, reserve component members serve part-time, maintain civilian employment, and may lack easy access to mental health services that are knowledgeable about their experiences within the military. This geographical and sometimes social isolation from other Service Members is a key difference in Service Members affiliated with the reserve as opposed to the active component (Gorman et al., 2011). The degree to which these differences influence treatment engagement remains unknown.

Several studies have examined how aspects of deployment may influence dropout. One study found that deploying to a combat zone and deploying multiple times were linked to lower dropout risk (Maguen et al., 2019). However, others have found that the number of combat experiences (Gros et al., 2013), reporting deployment concerns (Gros et al., 2013), and number of deployments completed (Harpaz-Rotem et al., 2014; Seal et al., 2010) were not linked with

dropout. Overall, it is unknown how a client's combat deployment experiences impact treatment engagement. It is possible that other aspects of the deployment cycle, including frequent turnover in staff, may influence aspects of treatment engagement. Within DoD settings, it is common for Service Members and uniformed therapists to receive orders to change duty stations (PCS; Reger et al., 2008). This tendency may increase dropout risk in DoD settings as a result, as Hoge and colleagues (2014) found that Soldiers cited the therapist moving and/or receiving orders to change duty stations as a reason for dropping out.

Studies have also explored whether receiving financial compensation for medical and/or mental health conditions acquired during military service – or service connection status – are linked with dropout (Garcia et al., 2011; Gros et al., 2013; Harpaz-Rotem & Rosenheck, 2011). Specifically, Veterans who acquired a physical (e.g., musculoskeletal injuries, burn injuries) or mental health (e.g., PTSD) condition associated with their military service (e.g., injury during training or deployment, military sexual trauma) may apply for service-connected financial benefits through the Veterans Benefits Administration. This application process entails interviews by trained professionals as well as a review of records (e.g., service records, medical or psychotherapy records through the VA). If the Veteran meets criteria for a service-connected disability, the Veteran is then assigned a rating from 0% through 100% that denotes the degree of severity of those conditions, where higher ratings are associated with greater financial compensation. Disability ratings may later be increased or decreased depending on changes in Veterans' symptoms over time.

The degree to which service connection affects treatment engagement, particularly within VA settings, is a controversial topic (Strom et al., 2012). Many VA therapists hold beliefs that Veterans with service connections will be less likely to engage in treatment (Sayer & Thuras,

2002). These beliefs may stem from potential secondary gain associated with reporting a lack of improvement in symptoms after engaging in psychotherapy. Specifically, professionals within the Veteran Benefits Administration may review psychotherapy records (e.g., session notes, completed symptom measures routinely incorporated into care). These records may then be used as justification to provide service-connected disability benefits or to adjust (e.g., increase, decrease) service connection ratings. Thus, there may be secondary financial gain associated with demonstrating a poor response to mental health treatment, including symptom change and dropping out. Among Veterans receiving PTSD treatment, receiving service-related disability benefits was linked with increased dropout in two studies (Gros et al., 2013; Harpaz-Rotem & Rosenheck, 2011). Cully and colleagues (2008) found that the degree to which service connection impacted treatment engagement depended on the disability rating (where ratings range from 0% to 100%, and 100% is the highest disability rating that yields the most financial compensation). Specifically, Veterans with a rating of 1-49% were more likely to receive one or more sessions, whereas Veterans with 50-100% ratings were less likely to receive one or more sessions (Cully et al., 2008). Yet another study found no link between overall disability rating and dropout (Garcia et al., 2011). Future research examining how the receipt of service connection is linked with dropout may have notable policy implications, as service connections were intended to provide financial compensation and link Veterans with needed mental health services.

Studies have explored the link between pathology variables and dropout in military populations, including trauma type and symptoms, comorbid and other MH symptoms, social support, stigma, and self-reliant attitudes towards managing one's problems. Regarding trauma type, one study found that clients who reported experiencing MST were more likely to complete

PE (Maguen et al., 2019). It is unclear why clients focusing on their MST experiences in PE were less likely to dropout. There have been significant policy initiatives to improve awareness of MST, connect survivors to free treatment services through the VA and Vet Centers, and improve access to coordinators at individual VA sites who can connect survivors to related resources (Foyne et al., 2018). Thus, it is possible that these changes facilitate treatment engagement by mitigating financial and organizational barriers to treatment completion. Another study found that Veterans receiving PE who focused on their childhood trauma in treatment were approximately half as likely to drop out as those who focused on their combat history (Eftekhari et al., 2020). It is unclear why this was the case. One explanation could be that individuals experiencing combat trauma may have experienced events that violate their beliefs about how the world should morally operate (i.e., moral injury; Litz et al., 2009). Those events might include killing others or witnessing the injury and/or death of civilian children. These experiences are often associated with strong feelings of guilt and shame (Litz et al., 2009), where their attributions that they did something wrong may actually be correct (e.g., accidentally killing a child during a mission). It is possible that these types of experiences make it particularly difficult to discuss aspects of their trauma experiences, in turn impacting treatment engagement in interventions requiring clients to do so (e.g., PE, CPT).

Qualitative and quantitative findings regarding the role of PTSD symptoms are mixed. In terms of qualitative findings, therapists attributed higher distress levels to dropout (Eftekhari et al., 2020), although clients more frequently attributed dropout to symptom improvement or a lack of treatment effectiveness (Hoge et al., 2014; Naifeh et al., 2016). Regarding quantitative studies, some found no link between PTSD severity and dropout (Gros et al., 2013; Kehle-Forbes et al., 2016), but other studies found that more (Garcia et al., 2011) or less severe PTSD (Harpaz-

Rotem et al., 2014; Nugent et al., 2022) are linked with dropout risk. It is unclear why these findings are mixed. Specific symptoms may be related to greater dropout, including endorsing less negative cognitions about self-blame (Holder et al., 2019), more negative cognitions about oneself (Holder et al., 2019), and less strong perceptions of having a foreshortened future (a criterion from the DSM-IV; Harpaz-Rotem et al., 2014).

In one study of Service Members, the number of comorbid mental health diagnoses was not linked with dropout risk (Nugent et al., 2022). Additional studies have also examined whether having comorbid symptoms in addition to PTSD is related to dropout risk among Veterans. One large study of OEF/OIF Veterans found that clients who had one or more MH diagnoses in addition to PTSD were more likely to complete 9 or more sessions compared to clients who had only a PTSD diagnosis (Seal et al., 2010). However, results from Harpaz-Rotem and Rosenheck (2011) suggest that dropout risk related to comorbid diagnoses may differ by the type of diagnosis. Specifically, Harpaz-Rotem and Rosenheck found that dropout risk was lower in those with comorbid alcohol and drug use disorders, schizophrenia spectrum disorders, and bipolar disorders; however, dropout risk was higher among those with comorbid major depressive disorder and dysthymia (now persistent depressive disorder in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed., text revision [DSM-5-TR]; American Psychiatric Association, 2022). These findings would suggest that depression symptoms, which include negative beliefs about oneself and difficulty initiating activities, might increase dropout risk more broadly. Among the studies that have examined the link between depression and dropout, mood disorder diagnoses (e.g., depression; Nugent et al., 2022) were linked to a lower dropout risk, although other studies have found no link (Gros et al., 2013; Holder et al., 2019). Thus, the role of depression symptoms and dropout risk remains unclear.

In terms of mental health symptoms beyond PTSD and depression, one large study of Service Members found that clients diagnosed with an adjustment disorder, anxiety disorder, mood disorder, or substance use disorder had lower dropout rates compared to those clients who were not diagnosed with those disorders (Nugent et al., 2022). Additionally, while Veterans who endorsed alcohol abuse, suicidal ideation or previous suicide attempts, and traumatic brain injuries (TBI) may be more likely to complete PE; clients diagnosed with schizophrenia or bipolar disorder diagnoses or who smoked tobacco were less likely to complete PE (Maguen et al., 2019). Although one study found that Soldier self-report of alcohol use problems was linked to dropout in a univariate analysis, alcohol use was no longer linked to dropout after accounting for rank, gender, and functional impairment (Britt et al., 2015). Additionally, findings regarding the role of functional impairment are mixed. In one study leveraging data from medical records, functional impairment was not linked to dropout risk (Nugent et al., 2022). Among a study leveraging Soldier self-report of functioning and dropout, greater functional impairment was linked to an increased risk of dropping out (Jennings et al., 2016).

Findings suggest that Veterans who perceive that they have adequate support after they return from deployment may be less likely to drop out (Gros et al., 2013), although one study did not find an association (Harpaz-Rotem et al., 2014). Interestingly, Service Members have also reported that talking about their problems with friends or relatives was a reason that they terminated treatment (Naifeh et al., 2016). Thus, whereas some Service Members and Veterans may benefit from post-deployment support in terms of treatment retention, others may view that support as a viable alternative for addressing their mental health concerns.

Results regarding stigma, or the belief that one will be viewed more negatively because of their mental health symptoms (Corrigan, 2004), are mixed. On the one hand, one study found

that endorsing stigmatizing attitudes was actually linked with an increased likelihood of completing 12 or more sessions (Harpaz-Rotem et al., 2014). On the other hand, approximately 5% of Veterans (Browne et al., 2021) and 38% (Hoge et al., 2014) to 41% of Army Soldiers (Naifeh et al., 2016) endorsed stigma as a reason for prematurely terminating treatment. Additionally, endorsing beliefs that experiencing mental health symptoms would negatively impact a Service Member's career and result in differential treatment have both been linked to greater dropout risk (Britt et al., 2015). Further, military culture typically values one's ability to handle problems on one's own (i.e., self-reliance), including mental health problems (Danforth & Wester, 2014; Reger et al., 2008). Endorsing these values may also increase dropout likelihood, as both Veterans (Browne et al., 2021) and Soldiers (Hoge et al., 2014; Naifeh et al., 2016) reported wanting to handle problems on their own as a reason for dropping out. Additionally, reporting stronger self-reliance preferences has been linked to greater dropout risk among Soldiers (Jennings et al., 2016). Thus, while clients' abilities to manage their mental health on their own is typically considered a positive treatment outcome, self-reliance may also reduce the likelihood that they will complete treatment.

Therapist Variables. Compared to dropout literature among civilian populations, considerably less is known about the role of therapist variables in military populations. Findings from one study of clients seeking treatment from Army medical facilities suggests that clients of therapists who were civilians or in the Reserves were less likely to dropout out than clients of active-duty therapists (Nugent et al., 2022). Although it is unknown why clients of active-duty therapists were at greater risk of dropping out, it is possible that active-duty therapists may be more likely to PCS and have more administrative duties than other therapists. Further, Hoge and colleagues (2014) found that Soldiers reported dropping out of treatment because they did not

feel like the therapist was caring or competent. Additionally, Soldiers in this study also reported dropping out because they disliked the way the therapist communicated with, misunderstood, or judged them.

Treatment Variables. The associations between several treatment variables and dropout have been examined, including treatment attitudes, treatment format and location, and exposure-based PTSD treatment. Regarding treatment attitudes, one study found that greater dropout risk among Veterans was associated with higher scores on a Minnesota Multiphasic Personality Inventory-2 subscale that suggests negative attitudes towards psychotherapy and discomfort with disclosing MH problems to therapists (Garcia et al., 2011). Soldiers who reported more negative beliefs about therapy were also at greater risk of dropping out, although Soldiers who reported negative beliefs about medication management were not (Jennings et al., 2016). Additionally, some Service Members report concerns about whether the information disclosed in therapy will be confidential or result in duty limitations (Curley et al., 2019; Hoge et al., 2014). Further, inconsistent PTSD treatment attendance may be an indicator of dropout risk, as treatment completers attended a higher proportion of scheduled sessions in one study (Niles et al., 2018).

In terms of treatment format, one meta-analysis found that dropout is higher for those attending group therapy for PTSD than it is for those attending individual therapy for PTSD (Goetter et al., 2015). However, the degree to which differences in individual treatment protocols influences the direction of this relationship remains unclear. For example, Maguen and colleagues (2019) found no difference in dropout between those completing individual and group formats of PE; however, clients who received individual formats of CPT were more likely to dropout than those who received group format or combined group and individual therapy of CPT. Further, meta-analytic findings suggest that clients using in-person and telehealth formats

are equally likely to complete PTSD treatment (Edwards-Stewart et al., 2022; Goetter et al., 2015).

Several studies have explored how aspects of treatment setting may be linked with dropout risk. Within VA settings, Veterans receiving care at primary care clinics may have higher dropout risk than those receiving care at mental health clinics (Seal et al., 2010; Spont et al., 2010). Although it is unclear why this may be the case, one explanation for this is that VA primary care clinics tend to only provide services to Veterans with less intensive symptoms. It is also possible that providing care in a setting where other medical professionals may also encourage treatment seeking serves as a motivating factor for engaging in psychotherapy.

Retention in treatment across individual settings may be impacted by additional structural factors, including geographical location, wait times, a shortage of psychotherapy providers, and difficulty navigating large healthcare systems. In terms of geographical location, Veterans located a greater distance from VAs may experience more difficulty in regularly accessing mental health services (Fortney et al., 2022; Hundt et al., 2014; Rosen et al., 2019). Regarding wait times, one study of 544 Veterans seeking care from 6 VA medical centers and 12 VA community-based outpatient centers (CBOCs) found that nearly a third of Veterans reported that long wait times interfered with their access to receiving their desired PTSD treatment. Another study found that longer wait times between a psychotherapy orientation session and initiating a course of therapy was linked with a lower likelihood of completing treatment among 124 Veterans (Fleming et al., 2018). Similarly, shortages of psychotherapy providers can inflate wait times and impede Veterans' access to services (Burnam et al., 2009). Further, military populations may experience difficulty in navigating large, bureaucratic systems for receiving psychotherapy related to their service-connected conditions (Koenig et al., 2016). Taken

together, aspects of treatment setting may be an important consideration when conceptualizing dropout risk among military populations.

In terms of treatment approach, findings from a large meta-analysis suggest that different approaches yield similar dropout rates across most presenting concerns (Swift & Greenberg, 2014). However, it is unclear whether these findings extend to Service Members and Veterans completing psychotherapy for a range of presenting concerns. Thus far, most literature examining the link between treatment approaches and dropout among military populations has been limited to trauma treatment. One meta-analysis found that Veterans receiving exposure- versus non-exposure-based PTSD treatments were equally likely to complete treatment (Goetter et al., 2015). However, that study was limited to OEF/OIF combat veterans and did not differentiate between treatments that emphasize (e.g., PE) versus de-prioritize (e.g., CPT) exposure-based components. This distinction between treatment types may be an important consideration, as studies have found more dropout among treatments requiring exposure (e.g., PE) as compared to those that consider exposure optional (e.g., CPT; Jeffreys et al., 2014; Kehle-Forbes et al., 2016). Consistent with this interpretation, a more recent meta-analysis of efficacy studies examining PTSD treatment among military populations found that trauma-focused treatments resulted in higher dropout rates than non-trauma-focused treatments (Edwards-Stewart et al., 2022). Although trauma-focused treatments initially accrued the largest evidence-base for ameliorating PTSD symptoms, findings from a recent meta-analysis suggests that one non-trauma-focused treatment may be just as effective at addressing PTSD symptoms (Belsher et al., 2019). Specifically, the authors compared changes in PTSD symptoms after engaging in trauma-focused cognitive-behavioral therapies to engaging in PCT. PCT is a manualized, client-centered therapy that does not directly elicit a discussion of clients' trauma memories. They

found that PCT was non-inferior to trauma-focused therapies, but that dropout rates were 14% lower for PCT than for trauma-focused therapies (Belsher et al., 2019). These meta-analytic findings suggest that PCT may be as effective in ameliorating PTSD symptoms yet more tolerable than trauma-focused therapies. While research investigating the utility of non-trauma-focused therapies beyond PCT is needed, it may be that these approaches are just as likely to result in PTSD symptom reduction as trauma-focused therapies but yield lower dropout rates.

Study Variables. Research variables may also be an important consideration among military populations. These variables may include dropout operationalization, study type, and the method used to assess dropout risk. As reviewed above, dropout operationalization is an important consideration given that it influences dropout rates (Hatchett & Park, 2003; Swift et al., 2009; Swift & Greenberg, 2012) and that there is limited agreement across operationalizations (Hatchett & Park, 2003; Swift et al., 2009). To-date, the role of operationalization in research examining dropout in military populations has yet to be determined. This may be an important consideration given the wide range of methods used among research with military populations. For example, most studies have used a set number of sessions (Eftekhari et al., 2020; Gros et al., 2013; Harpaz-Rotem et al., 2014; Hoge et al., 2014; Holder et al., 2019; Jeffreys et al., 2014; Seal et al., 2010; Spoont et al., 2010) that varies between studies and may under-estimate dropout rates compared to other methods (Swift & Greenberg, 2012). Relatively fewer studies have considered whether clients improved in treatment and met their goals (Garcia et al., 2011), used therapist report (Kehle-Forbes et al., 2016), or used a mixture of client report and medical records (Browne et al., 2021).

As reviewed above, RCTs and non-RCTs may yield similar dropout rates in cognitive-behavioral treatments (Fernandez et al., 2015), although efficacy studies may yield lower

dropout rates than effectiveness studies overall (Swift & Greenberg, 2012). The degree to which those findings from civilian populations may generalize to military populations is unclear.

Findings from a meta-analysis of PTSD treatment among military populations found higher rates of dropout among studies conducted in applied practice settings as compared to research settings (Goetter et al., 2015). However, this difference was not statistically significant, and the meta-analysis may have been unable to detect differences due to relatively low statistical power ($k = 20$). Thus, additional research is needed.

Both qualitative and quantitative methods have been used to evaluate who may drop out of treatment and the reasons they did so. First, studies have used qualitative strategies by asking Service Members (Hoge et al., 2014; Naifeh et al., 2016) and Veterans (Browne et al., 2021) to list reasons why they stopped attending sessions. One advantage of this method is that it provides richer information about potential warning signs than quantitative studies may provide. As such, qualitative studies may serve as an important source for investigating new research questions. This translation is important given that it is not always clear whether qualitative findings will generalize to other populations.

Several quantitative strategies have been used to assess dropout risk in military populations. Some studies have asked participants to self-report whether they dropped out of treatment and then examine whether other variables (e.g., demographics, MH symptoms) are associated with this self-report (e.g., Curley et al., 2019). Others have used data from medical records (e.g., Eftekhari et al., 2020) or RCTs (e.g., Gros et al., 2013) and assessed the relationships between available variables and dropout. Both methods allow researchers to examine whether there are risk factors linked to dropout that the participant may not be conscious of. Last, meta-analyses can also test whether variables were associated with dropout

across studies, although only two such meta-analyses have been conducted in military populations (Edwards-Stewart et al., 2022; Goetter et al., 2015). Together, the degree to which risk factors identified using different methods converge is unclear.

Costs of Dropout in Military Settings

It is likely that psychotherapy dropout results in some similar costs in military settings as it does in civilian populations. In civilian populations, these costs may include poorer treatment outcomes (e.g., Cahill et al., 2003; Straud et al., 2019; Swift et al., 2009), therapist demoralization (Piselli et al., 2011), lost revenue (Barrett et al., 2008), underutilization of therapist time due to missed appointments (Barrett et al., 2008), hindering other clients' efforts to receive scarce services (Barrett et al., 2008), and ongoing functional impairment (e.g., poor work-related performance; Barrett et al., 2008; Swift & Greenberg, 2015). These consequences are also important considerations in DoD and VA settings. Both settings experience a significant shortage of mental health services (U. S. Government Accountability Office, 2015, 2022), and longer wait times to access scarce resources is associated higher dropout risk among Veterans (Fleming et al., 2018). The toll of dropout on underutilization of therapists' time and lost revenue is also notable given the extensive resources needed to provide services through the DoD and VA. In addition, relying solely on a Service Member's or Veteran's support system may take a toll on those supports. For example, Service Members with PTSD symptoms or alcohol misuse in one study were more likely to have spouses who reported significant depression symptoms (Donoho et al., 2018).

Premature termination in DoD settings also has several important policy implications. Specifically, the DoD aims to maintain a workforce that is ready to deploy and achieve specific missions as a team, and mental health readiness plays a key role in achieving this aim (Curley &

Warner, 2017). Ultimately, Service Members must meet certain mental health requirements to qualify as ready to deploy with their unit (U.S. Department of the Army, 2018). Criteria that would disqualify a Service Member from deploying may include factors like engagement in intensive services (e.g., inpatient hospitalizations for mental health), mental health diagnoses, suicide-related risk, significant substance abuse, or starting certain medications for mental health reasons (e.g., antidepressants; U.S. Department of the Army, 2018). There are several reasons why these factors would disqualify one from deploying. First, serving in a combat zone is a highly stressful experience, where one may encounter events that qualify as a potentially traumatic event (e.g., witnessing the death or injury of others, experiencing the threat or actual physical harm during combat, learning of the deaths of loved ones). Such stressful situations may exacerbate existing mental health conditions, which can prevent Service Members from fulfilling their assigned tasks within their unit. Overall, these exacerbations of existing mental health symptoms can be highly problematic, as this increases the risk of harm to the Service Member and their unit members, the lowers the likelihood of successful mission completion, and detracts from their unit's ability to be combat-ready.

As such, it is incumbent upon commanders within DoD settings to monitor the degree to which their unit is ready to deploy, which includes mental health readiness. In these settings, commanders can mandate that Service Members seek an evaluation and/or psychotherapy for mental health-related reasons, which could result in the Service Member being deemed non-deployable. If this is the case, Service Members may be placed on a "profile" for mental health-related reasons that limits their ability to deploy (U. S. Department of the Army, 2021). Although Service Members on profiles may be granted a waiver and allowed to deploy if indicated, these waivers are not always approved. Mental health professionals play a key role in detecting mental

health readiness concerns, and are required by organizational policy to breach confidentiality and implement these profiles when indicated. Mental health professionals' use of profiles serve as a bridge for communication and source of information for the Service Member's commander. Ultimately, these systems are in place to ultimately ensure the safety of the Service Member, unit, and mission.

However, this requirement may also deter Service Members from fully engaging with the mental health system in DoD settings. One study specifically examined how readiness requirements may affect aspects of active-duty Soldiers' ($N = 1,043$) attitudes towards and engagement in mental health services (Curley et al., 2019). The authors found that, overall, Soldiers had more reservations about potential readiness-related restrictions associated with mental health rather than physical health. In terms of mental health profiles, 71% of Soldiers indicated that the implementation of such a profile would either have a neutral or positive effect on seeking mental health services. Over half of Soldiers indicated that they viewed profiles as an opportunity to recover and better allow commanders to prepare for missions. There were, however, significant preferences that emerged in terms of how those profiles were implemented. Most Soldiers preferred that commanders learn of their mental health condition either through the implementation of a profile (51%) or only when needed during "crisis" situations (46%). Very few (4%) wanted their commanders to become aware of mental health conditions through Soldier Readiness Processing, which is a formal screening process that assesses active- and reserve-component Service Members' readiness to deploy. Typically, this process occurs shortly before deployment, and there may be insufficient time to recover, obtain a waiver to deploy, and allow the commander to plan ahead when conditions are discovered during this process. Together, these findings from Curley et al. (2019) highlight how readiness-related policy affects

psychotherapy engagement in a nuanced manner, in which it is seen as a facilitator for treatment seeking for some and a barrier for others.

Premature termination in DoD treatment settings can present a significant challenge to ensuring mental health-related readiness, particularly if those who drop out still experience lingering mental health symptoms and deploy. In such settings, they may be exposed to potentially traumatic events during deployment that result in their symptoms worsening further (e.g., Curley & Warner, 2017; Warner et al., 2011). This symptom exacerbation is problematic, given that those individuals may be unable to respond to environmental threats during high-stress operations. As such, they may be unable to maintain individual and unit safety that can detract from mission success. Ensuring that Service Members remain in treatment to address potentially problematic symptoms may be one avenue for reducing safety and mission-related risks during deployment.

Engagement in psychotherapy post-deployment may also be an important consideration. One estimate suggested that the provision of post-deployment, evidence-based mental health interventions for PTSD and major depressive disorder alone could substantially improve productivity, save \$1.7 billion in resources within two years, and significantly reduce suicide risk (Eibner et al., 2008). Ultimately, efforts to facilitate treatment engagement in these post-deployment services can optimize the likelihood that Service Members will achieve their treatment goals (e.g., symptom remission, improved functioning) that may in turn yield these beneficial organizational outcomes.

Present Study

In sum, findings suggest that clients from both civilian and military populations prematurely terminate psychotherapy. Within civilian settings, Swift and Greenberg (2012)

conducted a large-scale meta-analysis of 669 studies reporting psychotherapy dropout rates from 83,834 adult clients. In their study, most primary articles targeted mood and anxiety disorders in an individual therapy format, leveraged cognitive-behavioral principles, were limited to less than 20 sessions in terms of treatment length, and were administered by experienced therapists in research or specialty clinics. They found an average dropout rate of 20% in their study.

Additionally, the authors identified several covariates and moderators linked with higher dropout risk, including interventions without a predetermined session limit versus interventions with a time limit, non-manualized versus manualized interventions, university-based clinics versus other settings (e.g., research settings, specialty clinics), treatments for personality and eating disorders, younger client age, lower levels of education, more male-identified clients in each sample, fewer clients in committed relationships, trainee therapists, studies where therapists identified whether clients dropped out versus other dropout definitions, effectiveness versus efficacy studies, and articles identified in keyword searches versus other search methods (Swift & Greenberg, 2012).

Another meta-analysis ($k = 115$) explored civilian psychotherapy dropout rates, covariates, and moderators among 20,995 adult, adolescent, and child clients initiating cognitive-behavioral interventions (Fernandez et al., 2015). Interventions included in this meta-analysis were largely targeting anxiety, eating, and other mixed disorders; individual and group therapies; and therapy provided in outpatient settings. The authors found an overall, average dropout rate of 26%. Dropout rates between studies with adults ($k = 31$; 15.9% dropout) and adolescents ($k = 4$; 18.5% dropout) did not differ in this meta-analysis. They identified several variables associated with greater dropout risk, including depression diagnoses, outpatient versus inpatient settings, and being in an earlier phase of treatment.

While such meta-analyses in civilian populations provide important insights into psychotherapy dropout, several challenges remain for understanding dropout in military populations. Although meta-analyses have examined the prevalence of dropout as well as factors linked with increased dropout rates in civilian populations, it is unclear the degree to which those findings may extend to military populations. It is possible that dropout prevalence may differ in military populations, where clients navigate different occupational contexts (e.g., combat deployment, organizational structure) characterized by variations in culture (e.g., endorsement of self-reliance beliefs for navigating mental health, prioritizing the mission above all else), interpersonal interactions (e.g., implications for post-deployment and post-service interactions with fellow unit members, family, and friends), and presenting mental health concerns (e.g., PTSD, substance use). These differences also make it unclear whether client, treatment, therapist, and study variables meta-analytically linked with dropout in civilian populations may be similarly linked with dropout in military populations. Taken together, a meta-analysis examining the average rate of dropout and moderators of dropout rates across existing studies in military populations may address these gaps in the literature.

To-date, two small meta-analyses have estimated the average rate of psychotherapy dropout among articles examining PTSD treatment engagement with military populations (Edwards-Stewart et al., 2022; Goetter et al., 2015). Specifically, Goetter and colleagues examined efficacy and effectiveness studies ($k = 20$) among military populations who engaged in a limited number of conflicts (OEF and OIF) and received PTSD treatment. This meta-analysis aimed to determine the overall dropout rate of those studies, and quantitatively investigated a limited number of potential moderators of dropout rates due to the relatively small number of studies included. Specifically, they found an average dropout rate of 36% and that higher rates of

dropout were linked with group versus individual therapy formats. They also found that several variables were not linked with dropout, including study type (clinical trials versus routine care), VA versus other settings, the exclusion of clients with substance use, and the use of telehealth versus an in-person modality. More recently, Edwards-Stewart and colleagues (2022) instead focused on RCTs of PTSD treatments (i.e., efficacy studies; $k = 26$) to evaluate whether psychotherapy dropout rates differed between trauma- and non-trauma-focused treatments. This study also examined a limited number of potential moderators. Overall, the authors found an average dropout rate of 24%. Additionally, they found that higher dropout rates were linked with trauma-focused versus non-trauma-focused PTSD treatments as well as studies that did not provide incentives for participation versus studies that did provide such incentives. Dropout was not linked with several variables, including study population (Veteran-only samples versus other samples), the country studies were conducted in, sample size, number of active treatment sessions completed, frequency of sessions, telehealth versus in-person modality, and whether the original treatment developer was a co-author.

However, several limitations with these two meta-analyses exist. First, it is unclear whether these findings will generalize to psychotherapy for presenting problems beyond PTSD. This is an important consideration, as dropout rates may differ for various presenting problems (e.g., Swift & Greenberg, 2012, 2014) and military populations report a range of presenting concerns beyond PTSD (e.g., anxiety, depression, anger-related behaviors; Hoge et al., 2004; Thomas et al., 2010; Williamson et al., 2018). Second, these meta-analyses utilized different study types to obtain dropout estimates, which makes interpretation of study findings more difficult. Specifically, whereas Goetter et al. (2015) leveraged both efficacy and effectiveness studies, Edwards-Stewart et al. (2022) leveraged only efficacy studies. The omission of

effectiveness studies from Edwards-Stewart and colleagues may have inadvertently lowered their average dropout rate estimate, as effectiveness studies have been previously found to yield higher dropout rates (Swift & Greenberg, 2012). Additionally, Goetter and colleagues included studies from only one service era (OEF and OIF conflicts), whereas Edwards-Stewart and colleagues did not. Given that previous study findings among Veterans have yielded mixed results regarding dropout rates across service eras (Harpaz-Rotem & Rosenheck, 2011; Jeffreys et al., 2014; Kehle-Forbes et al., 2016; Niles et al., 2018), it is unknown how these differences may have impacted dropout rates. Third, neither study incorporated prevalence estimates from survey research that has examined dropout rates and predictors in military populations (e.g., Britt et al., 2015; Curley et al., 2019; Hoge et al., 2014), and it remains unknown how survey methods may compare to dropout rates obtained from efficacy and effectiveness studies.

Therefore, the proposed meta-analysis aimed to address existing gaps in the literature in two ways. First, we obtained an estimate of dropout from psychotherapy specific to military populations. Unlike the only existing meta-analyses of dropout in military populations (Edwards-Stewart et al., 2022; Goetter et al., 2015), we included non-PTSD populations and military populations from other conflicts beyond OEF and OIF. This difference increases the likelihood that the pooled estimate will be more generalizable and of greater clinical utility to therapists who treat a range of presenting problems. Additionally, strict inclusion criteria related to a limited range of presenting problems (PTSD treatment; Edwards-Stewart et al., 2022; Goetter et al., 2015), leveraging clients from a select number of conflicts (OEF and OIF; Goetter et al., 2015), and utilizing a limited number of study design types (Edwards-Stewart et al., 2022; Goetter et al., 2015) have also previously minimized the potential number of moderators tested due to limited statistical power. Thus, broadening the inclusion criteria may also increase

statistical power and allow for testing additional moderators of dropout.

Second, we aimed to identify client (age, biological sex, education level, combat deployment history, service branch, rank, active versus reserve component, Service Member versus Veteran status, service era, disability benefits, ethnicity/racial identity, diagnosis, sexual orientation, and gender identity), therapist (previous service history, experience level, age, biological sex, and ethnicity/racial identity), treatment (theoretical orientation, treatment with a limited number of sessions, treatment manualization, treatment setting, treatment format, and telehealth versus in-person modality), and study variables (operationalization of dropout, study type, search strategy, and publication year) that moderate dropout rates. Using meta-analytic approaches to identify moderators may facilitate clinician attunement to clients at risk of dropping out, inform future efforts to study dropout (e.g., identifying at-risk populations, informing dropout operationalization), and enhance policymakers' ability to direct the allocation of resources (e.g., dropout interventions) to populations and clinics who serve military populations at risk of prematurely terminating treatment.

Taken together, the proposed meta-analysis aimed to (Aim 1) obtain an estimate of psychotherapy dropout in military populations and (Aim 2) test potential moderators of dropout prevalence rates. Findings from this project have a number of potential implications for research, clinical practice, and training efforts. First, the present study may obtain an estimate of psychotherapy dropout that therapists perceive as more applicable to their diverse client caseloads (e.g., diagnoses beyond PTSD, Veterans from other conflicts). This estimate may in turn serve as a benchmark for therapists, clinics, clinical administrators, and future researchers. This is important given that such a benchmark may serve as an indicator for when potential interventions and/or research may be indicated. For example, rates of dropout that exceed such a

benchmark may indicate to therapists, clinics, and administrators that intervention on the therapist- (e.g., individual supervision focused on client retention) and clinic-levels (e.g., dropout interventions) may be warranted. Further, dropout rates exceeding such a benchmark may warrant additional research to examine potential underlying factors (e.g., client, therapist, or treatment variables) for such rates. Second, examining study variables (e.g., efficacy versus effectiveness trials; dropout definitions) as moderators may help researchers interpret findings from studies using different samples and dropout definitions (Eftekhari et al., 2019; Hoge et al., 2014; Kehle-Forbes et al., 2015) and inform the selection of methods used to research psychotherapy dropout in the future.

Regarding clinical implications, identifying moderators allows clinicians to tailor treatment to their clients' needs (Zilcha-Mano & Errázuriz, 2015). For example, therapists may be particularly attentive to client engagement when there are specific factors endorsed that are linked with dropout risk. Last, this knowledge may aid clinic leadership in identifying whether therapists and their clients may benefit from additional supervision or interventions related to promoting treatment retention (e.g., Spencer et al., 2019; Swift et al., 2012).

In terms of training, discrepancies between rates of dropout in military versus civilian populations may provide insight into whether training and policy efforts should invest in interventions specifically targeting dropout in military populations. Additionally, implementation efforts may be most successful when they are flexibly delivered and acknowledge real world barriers to uptake (Boswell et al., 2015). Identifying moderators of dropout is one such method for facilitating flexible delivery. For example, trainers may emphasize that client engagement techniques (e.g., feedback informed treatment) are particularly important to use when there appear to be risk factors present (e.g., client diagnosis, lack of therapist experience). In sum,

better understanding the prevalence and predictors of dropout in military populations may inform future research efforts, enhance therapists' abilities to promote client engagement in psychotherapy, and facilitate implementation efforts that aim to improve the quality of psychotherapy provided to Service Members and Veterans.

Study Hypotheses

Hypothesis 1. Although the overall meta-analytic prevalence of dropout in military populations remains unknown, it is expected that clients will prematurely dropout of therapy. Whether dropout in civilian and military populations significantly differs is outside the scope of this project and thus will not be directly tested; however, we expect that the dropout rate estimate in military populations will somewhat approximate previous meta-analytic estimates in civilian populations (e.g., 20%, Swift & Greenberg, 2012) and subsets of military populations (24%, Edwards-Stewart et al., 2022; 36%, Goetter et al., 2015).

Hypothesis 2a. In terms of client variables, it is expected that dropout rates will be higher among younger versus older clients, male biological sex versus female biological sex, lower levels of education, a history of a combat deployment versus a history of no deployment, enlisted personnel versus officers, Service Members versus Veterans and mixed samples, and OEF/OIF/OND versus other service eras, and those receiving disability benefits versus those who are not. Given mixed findings in the literature, no directional hypotheses for dropout rates across clients' service branch, component (active versus reserve), race/ethnicity, and diagnoses are made. Last, given a dearth of literature, no directional hypothesis for dropout rates by sexual orientation and gender identity were made.

Hypothesis 2b. Regarding therapist variables, higher dropout rates are expected among therapists who are active-duty Service Members versus Service Members in the reserve

component, Veterans, or civilians as well as studies with trainee therapists versus studies with experienced therapists (i.e., obtained their professional degrees) and mixed therapist samples. In line with findings from Swift and Greenberg (2012), no differences in dropout rates are expected by therapist age, gender identity, and race/ethnicity.

Hypothesis 2c. For treatment variables, higher dropout rates are hypothesized to occur among treatments with an unlimited number of sessions versus a limited number of sessions, among unmanualized versus manualized treatments, as well as among DoD versus VA, civilian, and mixed treatment settings. Consistent with previous findings from Swift and Greenberg (2012), similar levels of dropout are expected to occur among different theoretical orientations (e.g., cognitive-behavioral, integrative, supportive/client-centered), treatment formats (individual, group, and combined individual and group therapy), and modalities (telehealth versus in person sessions).

Hypothesis 2d. In terms of study variables, higher dropout rates are expected among studies operationalizing dropout as therapist judgment versus other definitions (failure to complete treatment, less than a set number of sessions, and stopped attending treatment), effectiveness studies versus efficacy studies, and studies identified in keyword searches versus other search strategies (meta-analysis search, root and branch searches, and expert-recommended articles). Given previous null findings, no differences in dropout rates are expected by publication year.

Post-hoc Covariates and Moderators

Several variables were added *post-hoc* to the covariates and moderators tested in this study. These variables were included due to unexpected variability in these factors across articles meeting study inclusion criteria as well as their potential utility in conceptualizing dropout in

military populations. The variables added included MST history, obsessive-compulsive disorder, TBI history, level of intensity of services offered (e.g., outpatient, intensive outpatient, residential, and inpatient), and country that the study was conducted in. Specifically, the proportion of studies including clients with a MST history was included given that some preliminary findings suggest that focusing on MST experiences in PE was linked with a lower dropout risk (Maguen et al., 2019). There have also been significant efforts to facilitate MST survivors' access to care among VA and Vet Center settings, including free treatment services and MST coordinators in VA settings who help link Veterans to related services (Foyne et al., 2018). These efforts may in turn facilitate treatment engagement. Thus, we hypothesized that studies with a greater proportion of clients endorsing MST would yield lower dropout rates.

Additionally, obsessive-compulsive disorder was added as a covariate in this study. This disorder is particularly impairing in terms of the negative impact of symptoms on social and occupational functioning (Kessler et al., 2005). Of the clinical tools that are available for treating obsessive-compulsive disorder, exposure and response prevention is currently considered a front-line treatment approach (Hezel & Simpson, 2019). However, tools and trainings for treating obsessive-compulsive disorder are not widely disseminated in DoD and VA settings, and Service Members' and Veterans' engagement in these systems to target these symptoms in psychotherapy remains unknown. No directional hypothesis was made given limited knowledge of how these symptoms impact treatment engagement in Service Members and Veterans.

Further, TBI history was included as a covariate given that active symptoms typically encompass difficulties with cognitive and emotional functioning (Zeitzer & Brooks, 2008). These symptoms may be particularly important to consider within military populations. More recent conflicts – including OEF, OIF, and OND – have been characterized by the increased use

of blast-related weapons (e.g., improved explosive devices) that may lead to TBIs. TBI-related impairment may be problematic in psychotherapy, as the cognitive-behavioral strategies typically employed within DoD and VA settings often involve new learning (e.g., habituation in PE, challenging thought patterns in CPT) and regulating emotions (e.g., tolerating emotionally-distressing therapy tasks and homework assignments). It is possible that TBI symptoms may therefore present unique challenges to treatment engagement. Thus, we hypothesized that there is greater dropout risk associated with samples that have a higher proportion of clients with TBI histories.

The level of intensity of services – including outpatient services, intensive outpatient, residential programs, and inpatient programs – was added as a moderator variable. The intensity of these services is an important consideration, as clients in more intensive services (e.g., intensive outpatient, residential, and inpatient care) may experience fewer barriers to attending treatment (e.g., pre-existing commitment to taking leave from work to engage in at least several hours of services a day). Anecdotally, many clinics and training rollouts (e.g., CPT) within VA settings have encouraged therapists to offer two sessions per week or more for Veterans to engage in outpatient care. The clinical rationale for this accommodation is that it may reduce barriers to completing treatments that may take several months to complete if clients are only attending one session per week. Thus, this variable was added to empirically test this clinical hypothesis. Additionally, both DoD and VA settings offer clinics and programs that differ in the level of intensity of services provided. Identifying differences in dropout rates by intensity level may provide important information into which services (e.g., outpatient general mental health clinics versus inpatient programs) may benefit the most from dropout interventions. We expected

that individuals would be more likely to terminate from outpatient settings when compared to more intensive settings (intensive outpatient, residential, and inpatient).

Last, the country in which the primary article was conducted in (U.S. versus other country) was added as a moderator in this study. This variable was included to rule out whether difference between countries (e.g., cultural beliefs about seeking psychotherapy, engagement in different military conflicts, tendency to use different theoretical orientations or approaches) accounted for variability in dropout rates. No directional hypothesis was made due to a lack of prior literature addressing this topic in military populations.

Chapter 3: Method

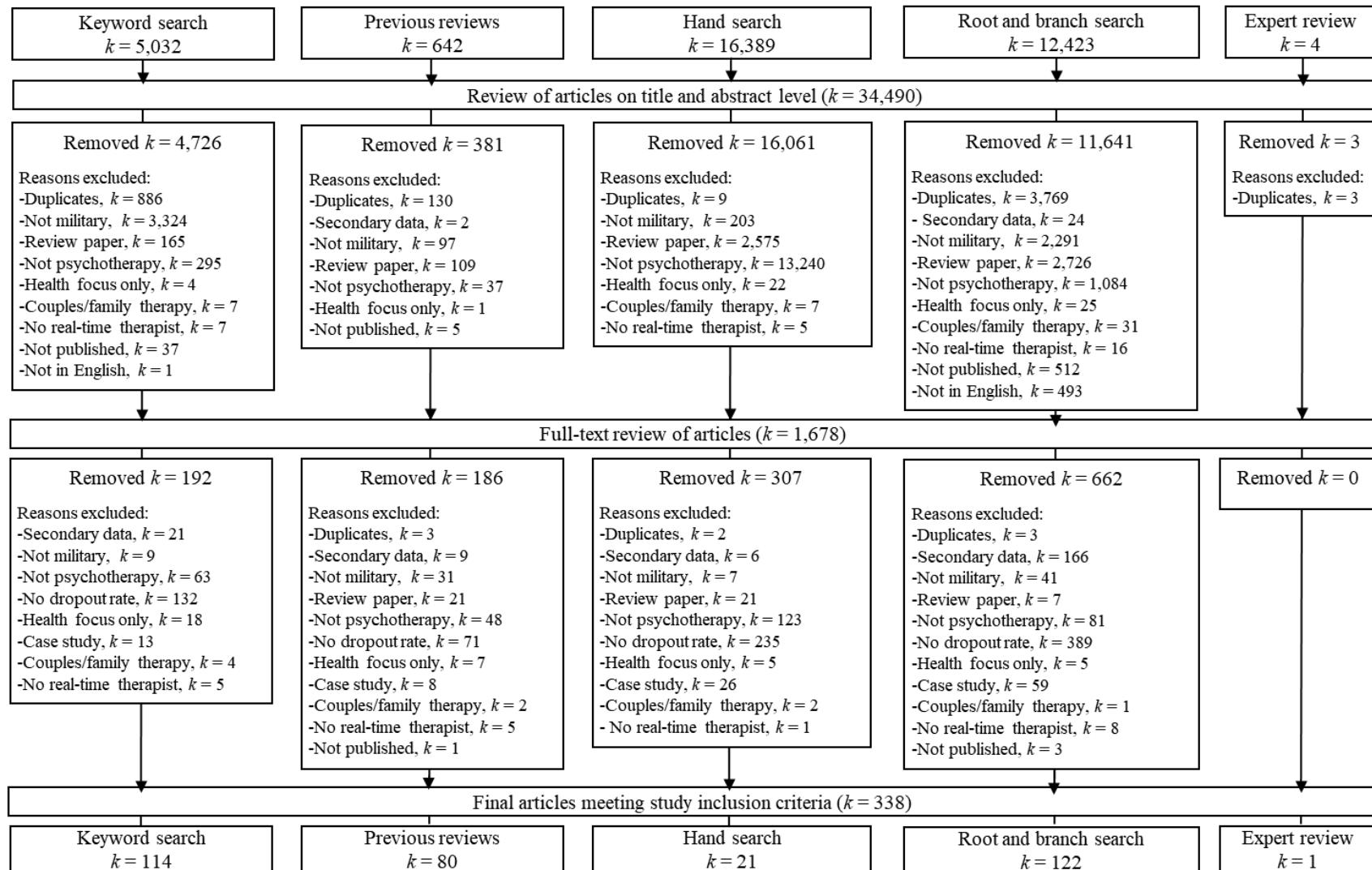
Inclusion Criteria

This study leveraged methods previously developed by meta-analyses examining dropout in civilian populations (Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993). In order to be included in the present meta-analysis, articles had to (1) report a dropout rate, (2) be published (i.e., gray literature was excluded), and (3) be published in English. Further, primary articles needed to include psychotherapy clients who (4) were adults, (5) started a psychological or psychosocial intervention, and (6) were members of a military population. Clients who (7) were primarily seen for a physical condition (e.g., weight management), (8) started an intervention that was exclusively a self-help or a technology-based intervention without real-time interchanges with a therapist (e.g., text responses, computer- rather than therapist-led intervention), and (9) attended only couples- or family-based interventions were not included in the study. Articles that met these nine criteria were reviewed in two stages.

First, article titles and abstracts were reviewed to determine whether articles preliminarily meet study inclusion criteria. Second, a full-text review was conducted with articles meeting the inclusion criteria in the first stage. See Figure 1 for the flow of studies throughout these two phases of review.

Search Strategies

The present study leveraged five search strategies: (1) keyword searches, (2) a review of previous meta-analyses and systematic reviews, (3) hand searches of related articles, (4) root and branch searches, and (5) soliciting feedback from experts in the field (i.e., American Psychological Association Division 19 members). First, the present study included keywords related to psychotherapy (*psychotherapy, treatment, counseling, mental health, intervention*),

Figure 1*Study Flow Chart of Articles Included*

dropout (*attrition, client variables, continuance, psychotherapy dropout, termination, and dropout*) and military populations (*Veteran*, VA, Department of Veterans Affairs, Service Member*, military, soldier, sailor, pilot, marine, special forces, Army, Navy, Coast Guard, National Guard, Reserves, Department of Defense, and DoD*; Curley et al., 2019). Thus, the final keyword search was: (psychotherapy OR treatment OR counseling OR mental health OR intervention) AND (attrition OR client variables OR continuance OR psychotherapy dropout OR termination OR dropout) AND (Veteran* OR VA OR Department of Veterans Affairs OR Service Member* OR military OR Soldier OR sailor OR pilot OR marine OR special forces OR Army OR Navy OR Coast Guard OR National Guard OR Reserves OR Department of Defense OR DoD). Keyword searches were conducted in MEDLINE, which facilitated a simultaneous search of PsychINFO and PubMed databases. Second, we evaluated previous systematic reviews and meta-analyses of psychotherapy dropout in military populations (e.g., Edwards-Stewart et al., 2022; Goetter et al., 2015; Steenkamp et al., 2015) identified in the keyword search. Third, hand searches for articles in journals that focus on military populations were conducted. These journals included: *Military Psychology*, *Military Medicine*, and *Military Behavioral Health*. Fourth, we conducted a review of articles listed in the references of keyword articles meeting inclusion criteria (i.e., root search) and all articles in Google Scholar that cited keyword articles meeting inclusion criteria (i.e., branch search). Last, experts in military psychology were consulted to obtain additional articles that were not identified previously. This entailed posting an invitation for feedback via listservs used for the American Psychological Association's division for military psychology (Division 19). Listserv members were prompted to email the graduate student researcher (E. Penix) or her advisor (J. Swift) with potential articles meeting study inclusion criteria.

Coding Procedures

Coders

Coders were trained and instructed in coding procedures (e.g., determining study eligibility, coding study variables) by the graduate student researcher (E. Penix) with oversight from her faculty advisor (J. Swift). The acceptable agreement rate was 85% and the target agreement rate was 90% for the review of titles and abstracts for inclusion criteria, full text review of articles for inclusion criteria, and coding articles meeting study inclusion criteria for variables of interest (e.g., dropout, moderator variables). When any discrepancies were identified, differences in coding were resolved by having the respective coders independently review source material (i.e., reviewing the primary article). The coders then separately provided their updated coding for discrepant variables. If the variable coding was still discrepant between coders after this process, the reviewers then resolved the remaining discrepancies through discussion until agreement was reached. If discrepancies remained after this discussion, the faculty advisor (J. Swift) was consulted until agreement was reached.

Study Eligibility Coding

The graduate student researcher reviewed all titles and abstracts ($k = 34,490$) identified using the five search strategies employed for the present study (Figure 1). In addition to the graduate student researcher, one independent researcher also conducted a review of titles and abstracts identified through the keyword search. The overall agreement rate for this review phase was 96.17%, which exceeded the target agreement rate of 90%.

Next, the graduate student researcher completed a full-text review of all articles identified through the first phase of review ($k = 1,678$) to determine study eligibility. Two independent researchers also reviewed a subset (22.79%) of these articles. The overall agreement rate was

91.18%, which exceeded the target agreement rate of 90%.

Study Variable Coding

A total of 338 articles met study inclusion criteria for the present meta-analysis. The graduate student researcher then coded all articles for the variables of interest for the present study (dropout rates, correlates, and moderator variables). Three independent researchers collectively provided secondary coding of all articles that were included in the present meta-analysis. The agreement rate between the primary coder (E. Penix) and secondary coders was 91.81% for study variables, which exceeded the target agreement rate of 90%.

Variables of Interest

Dropout Rates

The percentage of clients who initiated an intervention and prematurely terminated in a given study was used as the study dropout estimate (e.g., Swift & Greenberg, 2012).

Moderators of Dropout Rates

Therapist, client, treatment, and study variables were tested as moderators of dropout rates. Specifically, client variables included the demographic characteristics of: age, employment status, gender identity, sexual orientation, level of education, relationship status, and race/ethnicity. These factors are important for several reasons. First, demographic variables are typically assessed during psychotherapy intakes. Covariates and moderators related to demographics can facilitate therapist identification of potential variables that might impact their clients' engagement in therapy (e.g., assessing whether clients are in committed relationships that may or may not be supportive of the client attending psychotherapy), enabling therapists to leverage strategies that mitigate dropout risk. Additionally, differences in dropout by demographic groups can yield important information for clinic leadership, administrators, and

policymakers in terms of allocating resources and interventions to potential demographic groups. For example, high dropout rates among gender-diverse clients may indicate the need for therapist training specific to gender-diverse client needs, research efforts further investigating reasons for dropout, and policy efforts to improve retention (e.g., training for front desk staff pronoun usage, alterations to measurement-based care). Some variables included in this list are also under-researched within military populations, including the role of gender identity and sexual orientation.

Additionally, we included a number of service- and diagnostic-related characteristics, including Service Member versus Veteran status, combat deployment history, service branch, rank, component, service era, diagnostic characteristics (trauma, combat trauma, MST, anxiety disorder, depressive disorder, bipolar disorder, psychotic disorder, substance use disorder, personality disorder, obsessive-compulsive disorder, and TBI history) and receipt of VA service-connected disability benefits. These variables are important to investigate given that previous civilian meta-analyses do not focus on service-specific variables (e.g., rank, combat deployment history, service era). Rates of mental health diagnoses may also differ between civilian and military populations, and psychotherapy interventions may be specifically targeting presenting concerns connected with military service (e.g., combat service, MST, TBI history during combat deployment, post-deployment transition). Evaluating factors such as differences in dropout among service branches, component, Service Member and Veteran populations may also yield important insights into which services (e.g., Army, Navy, VA systems) may particularly benefit from treatment retention intervention efforts. In addition, some of these variables (e.g., service branch, Service Member versus Veteran status) can be difficult to research, as access to large samples of these military populations can be difficult or time-consuming to obtain (e.g., VA and

DoD research approval). In these cases, meta-analytic methods represent an important tool to address such gaps in the literature that may be otherwise difficult to address using primary research studies.

Further, therapists' demographic (age, biological sex, and race/ethnicity), clinical (experience level), and military (therapist service history) characteristics were examined. A link between therapist demographic characteristics and dropout may suggest that there are specific underlying mechanisms (e.g., feeling misunderstood by younger/older therapists, therapist and client difficulty navigating the impact of gender-related cultural scripts on mental health, racial/ethnic microaggressions with diverse client populations) that may benefit from additional research more explicitly investigating these factors. Additionally, trainees are an important part of delivering healthcare to military populations. A higher risk of dropout among trainee and mixed (i.e., trainee and experienced therapists) samples compared to experienced samples may, for example, highlight how dropout prevention trainings are needed for trainees who complete their training within DoD and VA systems. A link between dropout and therapist service history may highlight the need for a review in policy (e.g., additional recruitment strategies for Veteran therapists, review of policies surrounding protocol when an active-duty therapist is required to change their duty station).

Treatment variables included factors identified in previous meta-analyses in civilian populations (theoretical orientation, limited number of treatment sessions, manualization, treatment format, treatment intensity, and treatment modality) as well as factors specific to military populations (e.g., treatment setting). Investigating the role of treatment variables can yield insights into whether certain types or formats of interventions may benefit from supplemental components to bolster treatment retention (e.g., adding dropout prevention

strategies to cognitive-behavioral approaches, which are predominantly used in VA and DoD settings). Determining whether dropout rates may differ by treatment setting may also highlight the utility of implementing more dropout prevention strategies among VA, DoD, and civilian settings.

Last, methodological factors were examined, including dropout definition (therapist judgement, failure to complete a protocol, attend fewer than a set number of sessions, stopped attending treatment, and no definition provided), study type (effectiveness, efficacy, and survey methods), search strategy (keyword, meta-analysis search, root and branch search, and expert-recommended articles), and publication year. Evaluating whether these factors are linked to dropout can facilitate therapists', clinic administrators', and policymakers' abilities to interpret existing literature (e.g., approaches with evidence primarily from efficacy studies may yield lower dropout rates than if they were tested using effectiveness studies). Additionally, determining whether specific research methods (e.g., dropout definition, search strategy) are linked to dropout may yield insights into which methods may be optimal for future research (e.g., definitions associated with higher or lower dropout estimates).

Analytic Strategy

Comprehensive Meta-Analysis (CMA), Version 4 was used for statistical analyses. The CMA software package has been used in previous meta-analyses examining psychotherapy dropout in civilian populations (e.g., Swift & Greenberg, 2012, 2014). Specifically, random effects models were used given variability between studies in terms of treatment, therapist, client, and methodological factors.

The present study accounted for family-wise error rates by leveraging Holm's sequential Bonferroni procedure (Holm, 1979). We employed this method given that the Holm-Bonferroni

is considered more statistically powered than the traditional Bonferroni correction (Eichstaedt et al., 2013), as it is less likely to result in Type II errors (i.e., likelihood of erroneously accepting the null hypothesis when the null hypothesis is actually false). This Holm-Bonferroni procedure entails ranking the p values of hypothesized tests from smallest to largest. The target alpha level ($\alpha = .05$) is then divided by the following: the total number of tests completed (i.e., 50 for the present study), minus the rank of the given test, and then plus one. For example, the correlation between the percentage of the sample in the reserve component and psychotherapy dropout yielded the smallest p value ($< .0001$). Thus, the Holm-Bonferroni corrected p value for this test was calculated using the following formula: $.05 / (50 - 1 + 1)$. This formula is sequentially completed for each test until the unadjusted p value for a given test exceeds the Holm-Bonferroni corrected p value. When the Holm-Bonferroni corrected p value for covariates and moderators remained significant, planned *post-hoc* analyses were interpreted at the α level of .05.

Last, it is likely that studies may differ in the degree to which they report each continuous and categorical moderator (including each level of the categorical variable), where some variables (e.g., gender identity, sexual orientation) may be less frequently reported in the literature. The minimum number of effect sizes (i.e., dropout prevalence rates per variable or variable level for categorical analyses) needed to conduct covariate and moderation analyses is under debate (Cuijpers et al., 2021; Pincus et al., 2011). We determined *a priori* to set the minimum number to 10 effect sizes in order to include that variable or variable level, which is in line with some past recommendations (Furlan et al., 2009; Pincus et al., 2011).

Aim 1

To estimate psychotherapy dropout in military populations, a weighted average of the proportion of clients who prematurely terminated psychotherapy out of clients who initiated

psychotherapy was calculated. Given the expected variability in study populations, treatment methods, and designs, a random-effects model was used to calculate the weighted average dropout rate. The Q statistic and I^2 statistic were used to examine the degree to which dropout rates varied (i.e., heterogeneity) across studies.

Aim 2

Given that psychotherapy articles vary in the degree to which they report various factors that will be examined as moderators (e.g., Swift & Greenberg, 2012), separate models were used to test whether each significantly moderates dropout rates. Regarding categorical moderators (e.g., client diagnosis), mixed effects models and the Q statistic were used. This method is similar to an analysis of variance in that it partitions variance into between- and within-group variance and then compares both types of variance. When significant main effects were found for a categorical moderator with more than two categories, follow-up pairwise comparisons were conducted comparing two groups at a time. For continuous moderators (e.g., age, year of publication), meta-regression analyses were used. As with categorical moderators, mixed effects models were used to test continuous moderators. For moderators that have too few studies reporting on those characteristics (< 10 studies) to have sufficient statistical power for moderation analyses, a qualitative description of existing findings was provided as applicable. Additionally, information for some variables was obtained to describe the characteristics of existing study samples. For example, information was obtained regarding service branch (respective percentages of each study sample that served in the Army, Navy, Marines, and Air Force), sexual orientation (percentage identifying as heterosexual, lesbian, gay, bisexual, and other), gender identity (percentage identifying as cisgender male, cisgender female, transgender male, transgender female, non-binary, and other), race/ethnicity (respective percentages

identifying as non-Hispanic White, Black, Latine, and Asian), and diagnostic characteristics (trauma, combat trauma, MST, adjustment disorder, anxiety disorder, depressive disorder, other mood disorder, psychotic disorder, substance use disorder, personality disorder, obsessive-compulsive disorder, TBI history).

Among client variables, categorical moderator variables included service status (Service Members, Veterans, and mixed sample). Continuous moderators included age (i.e., mean age of study sample), employment (percentage of clients employed by any amount), biological sex (i.e., percentage of female-identified clients), education (both the average number of years of education as well as the percentage of clients with at least some college-level education), rank (percentage of officers), component (percentage of reserve component), relationship status (percentage in committed or marital relationships), diverse gender identity (percentage of transgender or non-binary clients), diverse sexual orientation (percentage of clients identifying as gay, lesbian, bisexual, or other diverse sexual orientation), race/ethnicity (percentage of clients identifying as non-Hispanic White; percentage of clients identifying as Black, percentage of clients identifying as Latine, percentage of clients identifying as Asian, percentage of clients identifying as Native American), combat deployment history (percentage with combat history), service era (percentage of clients serving in OEF/OIF/OND, Gulf Wars, Vietnam, Korea, and WWI/WWII), receipt of service connection benefits (percentage of sample receiving disability benefits), and clinical characteristics trauma, combat trauma, MST, adjustment disorder, anxiety disorder, depressive disorder, other mood disorder, psychotic disorder, substance use disorder, personality disorder, obsessive-compulsive disorder, and TBI history).

Regarding therapist variables, categorical moderators included therapist service history (active-duty Service Member, reserve component Service Member, Veteran, civilian) and

experience level (trainees working towards obtaining a professional degree, clinicians who obtained their professional degree, and mixed sample). Continuous moderators included age (mean age of study therapists), biological sex/gender (percentage of female-identified therapists), and race/ethnicity (percentage of therapists identifying as non-Hispanic White, percentage identifying as Black, percentage identifying as Latine, and percentage identifying as Asian).

In terms of treatment variables, categorical moderators included treatment orientation (cognitive-behavioral, integrative, psychodynamic, solution-focused, supportive/client-centered, and other), treatment manualization (yes versus no), time limitations (none, low [time-limited and <21 sessions were offered, and high [time-limited and 21 or more sessions were offered]), treatment setting (VA, DoD, civilian, or mixed), treatment format (individual, group, and combined individual and group), level of service intensity (outpatient, intensive outpatient, residential, and inpatient), and treatment modality (telehealth versus in person).

For study variables, categorical moderators included dropout operationalization (therapist judgment, failure to complete treatment, less than a set number of sessions completed, stopped attending treatment), study type (effectiveness study, efficacy study, or survey research), search strategy used to identify study (keyword, meta-analysis search, root and branch search, and expert-recommended articles), and the country the study was conducted in (United States and other). Publication year was tested as a continuous variable.

Chapter 4: Results

A total of 338 articles published between 1958 and 2022 met study inclusion criteria for the present meta-analysis. Data from 735,771 Veterans and Service Members who initiated a psychotherapy intervention were represented in the present meta-analysis. See Appendix 1 for the corresponding reference list of the studies included in this review.

Overall, studies were primarily conducted with Veteran samples ($k = 282$), as opposed to Service Member ($k = 30$) as well as mixed Veteran and Service Member ($k = 25$) samples. Interventions were primarily delivered in a VA setting ($k = 260$), followed by civilian (e.g., universities, community clinics; $k = 35$) and DoD ($k = 26$) settings. Most psychotherapy interventions were delivered by experienced therapists who completed their degrees ($k = 155$) as opposed to interventions delivered by both experienced therapists and trainee therapists who had yet to complete their degrees ($k = 63$). Overall, treatments delivered were primarily cognitive-behavioral in theoretical orientation ($k = 288$), followed by supportive/client-centered ($k = 25$) and integrative ($k = 23$). Most interventions were manualized ($k = 289$), although some were not ($k = 25$). While many interventions provided had a low time limit (i.e., 20 or fewer sessions; $k = 252$), some interventions had a high time limit (i.e., 21 or greater sessions; $k = 51$) or no time limit ($k = 22$). Studies evaluating individual therapy interventions were the most common ($k = 165$), followed by group therapy ($k = 107$) and interventions that consisted of both individual and group therapy components ($k = 64$). Most articles examined interventions delivered in outpatient settings ($k = 274$), followed by residential ($k = 28$), intensive outpatient ($k = 25$), and inpatient ($k = 12$) settings. Interventions were primarily delivered in face-to-face formats ($k = 320$) as opposed to telehealth formats ($k = 29$). Studies were primarily conducted in applied settings (i.e., effectiveness studies; $k = 191$), as opposed to those conducted in more tightly controlled settings

(i.e., efficacy studies; $k = 147$). No studies meeting inclusion criteria used survey methods to assess dropout. Nearly half of the studies included in the present meta-analysis did not report how they defined psychotherapy dropout ($k = 153$). Of the studies that did, dropout was frequently defined as a failure to complete a given protocol ($k = 124$), followed by therapist report of dropout ($k = 27$), another definition (e.g., attending first and last sessions, completing an arbitrarily determined number of sessions not based on a given protocol; $k = 19$), and stopped attending appointments ($k = 15$). The majority of studies were conducted in the United States ($k = 317$), while 21 studies were conducted in other countries. These countries included Australia ($k = 4$), both Australia and New Zealand ($k = 1$), Croatia ($k = 1$), Iran ($k = 4$), Israel ($k = 4$), Netherlands ($k = 1$), New Zealand ($k = 1$), and the United Kingdom ($k = 5$).

Overall Weighted Dropout Rate

The weighted, average dropout rate across studies included in the present meta-analysis was 23.4%, 95% CI [20.5%, 26.6%]. Dropout rates significantly varied across studies, such that there was a high rate of heterogeneity across estimates, $Q(337) = 137,157.67$, $p < .001$, $I^2 = 99.75$. Estimates of psychotherapy dropout across individual articles included in the present meta-analysis ranged from 0% ($k = 21$) to 92% ($k = 1$). Taken together, the significant variability found across dropout rates suggests that an overall estimate of psychotherapy dropout may not be appropriate for all studies or contexts. This variability also indicates that there may be covariates and moderators of psychotherapy dropout that can account for the heterogeneity in dropout rates among individual studies.

Covariates and Moderators of Dropout

Client Variables

Qualitative Findings. Several client variables of interest yielded insufficient data (i.e.,

less than 10 effect sizes per variable or variable level) to test them as correlates and moderators of dropout rates. These variables included the percentage of individuals with diverse gender identities (e.g., transgender, non-binary), diverse sexual orientations (e.g., lesbian, gay, queer), an adjustment disorder diagnosis, service in WWI and/or WWII eras, stigma, and career concerns. In terms of gender diversity, only 9 of 338 studies reported diverse identities. Sexual orientation was similarly under-reported by studies, with only four articles reporting participants' sexual orientations. For both sexual orientation and gender identity, no study examined the link between participants' identities and psychotherapy dropout. Few studies reported data related to the prevalence of adjustment disorders in their samples ($k = 9$). Nugent and colleagues (2022) directly tested the link between adjustment disorder and dropout. They found that a diagnosis of adjustment disorder had lower odds of dropping out ($OR = 0.49$) compared to Service Members who did not have that diagnosis (Nugent et al., 2022). Only eight studies reported the prevalence of Veterans who served in WWI and WWII, and no study tested the link between serving in the World War eras and dropout. One study (Meis et al., 2019) reported data related to mental health stigma. The authors found that stigma was not significantly associated with dropout among Veterans initiating PE and CPT. No study meeting inclusion criteria for the present meta-analysis included a measure of career concerns related to mental health treatment engagement.

Quantitative Findings. The present study examined a number of client demographic characteristics as correlates of dropout (see Table 1 for statistical results). Dropout was not associated with the mean client age, percentage of clients who were employed by any amount, mean years of education, percentage who received some college education, and percentage who were female-identified. Given that most articles reported gender as a binary construct (male versus female) and there was insufficient data to test diverse gender identities as a dropout

Table 1

*Meta-Regression Analyses Evaluating Client Demographic Characteristics as Covariates of
Psychotherapy Dropout among Military Populations*

Variable	<i>k</i>	Point estimate	95% CI	Z value	<i>p</i> value	Description
Mean client age	313					
Intercept		-0.30	-0.99, 0.38	-0.87	.38	
Slope		-0.02	-0.03, 0.00	-2.45	.01	
% employed	98					
Intercept		-1.06	-1.53, -0.58	-4.35	<.001	
Slope		0.00	-0.01, 0.01	0.22	.83	
Mean years of education	79					
Intercept		0.92	-1.75, 3.58	0.67	.50	
Slope		-0.15	-0.35, 0.05	-1.45	.15	
% achieved some college	82					
Intercept		-0.71	-1.30, -0.13	-2.38	.02	
Slope		0.00	-0.01, 0.00	-1.13	.26	
% in committed relationship	186					In relationship, ↓ dropout
Intercept		-0.51	-0.92, -0.11	-2.47	.01	
Slope		-0.01	-0.02, -0.01	-3.28	.001*	
% cisgender female	320					
Intercept		-1.11	-1.30, -0.92	-11.26	<.001	
Slope		0.00	-0.01, 0.00	-0.84	.40	
% non-Hispanic White	272					
Intercept		-1.08	-1.68, -0.48	-3.53	<.001	
Slope		0.00	-0.01, 0.01	-0.16	.87	
% Latine	164					
Intercept		-1.09	-1.41, -0.76	-6.51	<.001	
Slope		0.00	-0.01, 0.02	0.29	.77	
% Black	231					
Intercept		-1.17	-1.50, -0.85	-7.06	<.001	
Slope		0.00	-0.01, 0.01	0.87	.39	
% Asian	73					
Intercept		-0.93	-1.36, -0.50	-4.26	<.001	
Slope		-0.01	-0.05, 0.03	-0.34	.74	
% Native American	74					
Intercept		-0.92	1.37, -0.48	-4.05	<.001	
Slope		-0.04	-0.08, 0.00	-1.79	.07	

*Statistically significant after implementing the Holm-Bonferroni correction.

covariate, the percentage of male-identified clients was excluded as a covariate. Further, dropout was not linked with the percentage of the sample with the following racial/ethnic identities: non-Hispanic White, Latine, Black, Asian, and Native American. However, lower dropout rates were associated with studies reporting a greater percentage of clients in committed relationships.

We also tested whether clients' service-related characteristics correlated with dropout rates (see Table 2 for statistical results). The percentages of clients employed in each service branch (Army, Navy, Marines, and Air Force) and who served in a variety of conflicts (OEF, OEF, and/or OND; Gulf Wars; Vietnam; and Korea) were not associated with dropout. Additionally, the proportions of individuals who were officers and who reported combat deployment histories were not linked with dropout. Higher rates of dropout were associated with articles who had a higher proportion of clients who served in a reserve component (e.g., Army Reserves, National Guard).

Further, we examined whether clients' clinical characteristics were linked with dropout (see Table 3 for statistical results). Dropout was not associated with the proportion of study samples with the following: trauma-related symptoms, history of combat trauma, history of MST, anxiety disorder, depressive disorder, bipolar disorder, psychotic disorder (e.g., schizophrenia, schizoaffective disorder), substance use disorder, personality disorder (e.g., borderline personality disorder, antisocial personality disorder), and obsessive-compulsive disorder. There was no link between the proportion of study samples who reported a TBI history and dropout. Additionally, receiving service-connected disability benefits through the VA was not associated with dropout.

Table 2*Meta-Regression Analyses Evaluating Client Military Characteristics as Covariates of**Psychotherapy Dropout among Military Populations*

Variable	<i>k</i>	Point estimate	95% CI	Z value	<i>p</i> value	Description
% Army	68					
Intercept		-0.76	-1.35, -0.16	-2.50	.01	
Slope		0.00	-0.02, 0.00	-2.00	.05	
% Navy	55					
Intercept		-1.02	-1.29, -0.74	-7.12	<.001	
Slope		-0.01	-0.03, 0.00	-1.71	.09	
% Marines	55					
Intercept		-1.24	-1.47, -1.00	-10.37	<.001	
Slope		0.00	-0.00, 0.01	0.97	.33	
% Air Force	54					
Intercept		-1.12	-1.37, -0.88	-8.95	<.001	
Slope		-0.01	-0.02, 0.01	-1.31	.19	
% reserve component	39					Greater % reserve, ↑ dropout
Intercept		-1.28	-1.46, -1.11	-14.39	<.001	
Slope		0.03	0.03, 0.04	7.64	<.001*	
% officers	33					
Intercept		-1.18	-1.47, -0.89	-8	<.001	
Slope		-0.01	-0.04, 0.01	-1.07	.28	
% with combat deployment history	139					
Intercept		-0.23	-1.50, 1.04	-0.35	.72	
Slope		-0.01	-0.03, 0.00	-1.87	.06	
% OEF/OIF/OND	148					
Intercept		-1.33	-1.88, -0.77	-4.67	<.001	
Slope		0.00	0.00, 0.01	0.86	.39	
% Gulf Wars	71					
Intercept		-1.43	-1.95, -0.92	-5.44	<.001	
Slope		0.02	-0.01, 0.04	1.23	.22	
% Vietnam	103					
Intercept		-0.81	-1.75, 0.13	-1.69	.09	
Slope		-0.01	0.03, 0.01	-1.22	.22	
% Korea	11					
Intercept		-1.23	-3.13, 0.66	-1.28	.20	
Slope		0.03	-0.10, 0.16	0.48	.63	
% any service connection	60					
Intercept		-0.74	-1.70, 0.20	-1.55	.12	
Slope		-0.01	-0.02, 0.01	-0.67	.50	

*Statistically significant after implementing the Holm-Bonferroni correction.

Table 3

Meta-Regression Analyses Evaluating Client Diagnostic, Therapist, and Study Characteristics as Covariates of Psychotherapy Dropout among Military Populations

Variable	<i>k</i>	Point estimate	95% CI	Z value	<i>p</i> value
% client trauma	287				
Intercept		-1.07	-2.01, -0.13	-2.23	.03
Slope		0.00	-0.01, 0.01	-0.30	.76
% client combat trauma	112				
Intercept		-0.94	-2.17, 0.28	-1.51	.13
Slope		-0.01	-0.02, 0.01	-0.76	.45
% client military sexual trauma	38				
Intercept		-1.10	-1.92, -0.27	-2.61	.01
Slope		0.00	-0.02, 0.01	-0.07	.95
% client anxiety disorder	83				
Intercept		-1.24	-1.74, -0.75	-4.94	<.001
Slope		0.00	-0.01, 0.01	-0.23	.82
% client depressive disorder	106				
Intercept		-0.88	-1.27, -0.48	-4.34	<.001
Slope		0.00	-0.01, 0.00	-1.09	.28
% client bipolar disorder	53				
Intercept		-1.24	-1.51, -0.97	-8.97	<.001
Slope		0.03	-0.01, 0.07	1.48	.14
% client psychotic disorder	65				
Intercept		-1.18	-1.46, -0.90	-8.36	<.001
Slope		0.00	-0.02, 0.02	0.17	.87
% client substance use	139				
Intercept		-0.94	-1.15, -0.73	-8.76	<.001
Slope		0.00	0.00, 0.00	0.44	.66
% client personality disorder	22				
Intercept		-1.28	-1.75, -0.80	-5.28	<.001
Slope		0.00	-0.02, 0.02	-0.06	.95
% client obsessive-compulsive disorder	23				
Intercept		-0.89	-1.26, -0.52	-4.73	<.001
Slope		-0.02	-0.03, 0.00	-2.33	.02
% client traumatic brain injury history	42				
Intercept		-1.02	-1.56, -0.47	-3.66	<.001
Slope		0.00	-0.01, 0.01	0.37	.71
% female therapists	20				
Intercept		0.00	-1.97, 1.96	0.00	1.00
Slope		-0.02	-0.04, 0.01	-1.27	.20
Year of publication	338				
Intercept		3.73	-30.99, 38.45	0.21	.83
Slope		0.00	-0.02, 0.01	-0.28	.78

Note. No predictors were significant after implementing the Holm-Bonferroni correction.

Last, we tested whether the sample type studied moderated dropout rates (see Table 4 for statistical results). Specifically, dropout rates did not differ across articles studying psychotherapy interventions among Veterans, Service Members, or mixed samples (both Veterans and Service Members).

Therapist Variables

Qualitative Findings. In the present study, there was insufficient data to test the association between several therapist characteristics and dropout. These characteristics included the mean age of study therapists as well as the percentage of study therapists that were active-duty Service Members, reserve-component Service Members, Veterans, civilians, White, Black, Latine, and Asian. Only two studies reported therapists' mean age, and no study examined the link between therapist age and dropout. Regarding therapist service history, few studies reported data related to whether therapists were themselves active-duty ($k = 3$), in the reserve component ($k = 2$), Veterans ($k = 4$), or civilians ($k = 7$). Only one study (Nugent et al., 2022) compared dropout rates across therapists' service histories. Specifically, the authors found that clients seeking services from active-duty therapists were more likely to drop out than clients seeking services from reserve component and civilian therapists. In terms of therapists' racial and ethnic identities, few studies reported the proportion of therapists who were White ($k = 5$), Black ($k = 2$), Latine ($k = 2$), and Asian ($k = 2$). No study examined the link between therapist race/ethnicity and dropout.

Quantitative Findings. The present study tested therapist gender and therapist training as a covariate and moderator of dropout, respectively. In terms of therapist gender, the proportion of female-identified therapists was not linked to dropout rates (see Table 3 for

Table 4

Subgroup Analyses Examining the Role of Client, Therapist, and Treatment Variables as Moderators of Psychotherapy Dropout among Military Populations

Moderator	<i>k</i>	Dropout rate	95% CI	Q value	<i>p</i> value
Sample type				4.78	.09
Veteran	282	24.9%	21.6%, 28.5%		
Service Member	30	17.5%	11.1%, 26.5%		
Mixed sample	25	18.6%	13.6%, 24.9%		
Therapist experience				12.04	.001*
Mixed experienced and trainee therapists	63	29.1%	25.6%, 32.9%		
Experienced therapists only	155	20.7%	17.7%, 23.9%		
Treatment orientation				8.55	.01
Cognitive-behavioral	288	24.8%	22.5%, 27.2%		
Supportive, client-centered	25	18.6%	14.2%, 23.9%		
Integrative	23	15.9%	10.6%, 23.2%		
Manualized				0.38	.54
Yes	289	24.0%	21.8%, 26.4%		
No	25	21.5%	15.0%, 29.8%		
Time-limited approach				24.38	<.001*
Yes, high limit (≥ 21 sessions)	51	14.1%	10.9%, 18.1%		
Yes, low limit (<21 sessions)	252	26.9%	24.5%, 29.5%		
No limit	22	24.4%	15.0%, 37.1%		
Treatment location				14.82	.001*
Department of Veterans Affairs	260	26.1%	22.6%, 30.0%		
Department of Defense	26	16.8%	10.2%, 26.5%		
Civilian (e.g., universities)	35	13.7%	9.7%, 19.0%		
Treatment format				7.16	.03
Individual therapy	165	27.8%	22.4%, 34.0%		
Group therapy	107	22.2%	19.6%, 24.9%		
Combined individual and group	64	18.1%	14.1%, 22.8%		
Level of care				12.372	.006
Outpatient	274	25.7%	22.1%, 29.6%		
Intensive outpatient	25	11.6%	7.0%, 18.7%		
Residential	28	15.4%	11.1%, 21.0%		
Inpatient	12	22.5%	13.7%, 34.5%		
Modality				2.47	.12
In person	320	22.8%	19.6%, 26.4%		
Telehealth	29	28.3%	22.5%, 34.9%		

*Statistically significant after implementing the Holm-Bonferroni correction.

statistical results). However, dropout rates significantly differed by therapists' experience level (see Table 4 for statistical results). Specifically, studies with experienced (i.e., received their professional degrees) therapists only reported lower dropout rates than studies with both experienced and trainee (i.e., no receipt of their professional degree) therapists. No study reported leveraging only trainee therapists; thus, this group was excluded from analyses.

Treatment Variables

See Table 4 for statistical results related to treatment variables as moderators of psychotherapy dropout. Specifically, dropout did not differ across interventions that leveraged various theoretical orientations, including cognitive-behavioral, supportive/client-centered, and integrative orientations. There was insufficient data to examine dropout rates between interventions leveraging psychodynamic ($k = 5$) and solution-focused ($k = 2$) orientations. Further, dropout did not differ across interventions that utilized a manual compared to those that did not. Interventions with higher time limits (≥ 21 sessions) yielded lower dropouts than interventions with shorter time limits (< 21 sessions; $Q(1) = 26.14, p < .001$) and no time limits ($Q(1) = 5.80, p = .02$). Dropout rates did not differ between interventions with shorter and no time limits, $Q(1) = 0.09, p = .77$. In terms of treatment setting, interventions delivered in VA settings yielded higher dropout rates compared to interventions delivered in civilian settings, $Q(1) = 10.37, p < .001$. Interventions delivered in DoD settings yielded similar dropout rates as interventions delivered in VA ($Q(1) = 3.08, p = .08$) and civilian ($Q(1) = 0.97, p = .33$) settings. Dropout rates were similar across interventions using individual, group, and combined (i.e., both individual and group) formats. Studies evaluating interventions in outpatient, intensive outpatient, residential, and inpatient programs reported similar dropout rates. Last, interventions utilizing in person and telehealth modalities did not differ in terms of dropout rates.

Study Variables

In terms of study variables, we tested year of publication as a covariate of dropout (see Table 3 for statistical results). We found that year of publication was not significantly linked with dropout rates. See Table 5 for statistical findings related to study variables as moderators of psychotherapy dropout. Specifically, studies conducted in applied settings (i.e., effectiveness studies) yielded similar dropout rates as those that were conducted in more tightly-controlled settings (i.e., efficacy studies). Dropout definition was a significant moderator of dropout rates. Articles that used therapist report to estimate dropout rates reported higher dropout rates than those that used failure to complete a specific treatment protocol ($Q(1) = 6.08, p = .01$). Articles that did not specify how dropout was defined yielded lower dropout rates than articles that did specify (therapist report, $Q(1) = 35.94, p < .001$; failure to complete a protocol, $Q(1) = 49.18, p < .001$; stopped attending, $Q(1) = 4.53, p = .03$; and other dropout definition, $Q(1) = 9.49, p = .002$). There were no significant differences in the remaining pair-wise comparisons between dropout definitions: therapist report versus stopped attending sessions ($Q(1) = 2.40, p = .12$), therapist report versus another dropout definition ($Q(1) = 0.09, p = .77$), stopped attending versus another definition ($Q(1) = 0.81, p = .37$), stopped attending versus failure to complete ($Q(1) = .01, p = .93$), and another definition versus failure to complete ($Q(1) = 0.82, p = .36$). Dropout rates did not differ by studies that were identified using keyword, root and branch, review of previous meta-analyses and systematic reviews, and hand reviews of related journals. There were insufficient articles identified ($k = 1$) using the expert search strategy to include this method in this test. Last, interventions delivered in the United States yielded similar dropout rates as interventions delivered in other countries.

Table 5*Subgroup Analyses Examining the Role of Research Variables as Moderators of Psychotherapy**Dropout among Military Populations*

Moderator	<i>k</i>	Dropout rate	95% CI	Q value	<i>p</i> value
Study type				0.004	.95
Effectiveness	191	24.5%	20.7%, 28.8%		
Efficacy	147	24.4%	21.9%, 27.1%		
Dropout definition				79.21	<.001*
Therapist report	27	39.5%	28.4%, 51.7%		
Other (e.g., attending first and last sessions, completing arbitrary number of sessions)	19	36.3%	24.1%, 50.6%		
Failure to complete set number of sessions	124	29.7%	25.0%, 34.9%		
Stopped attending sessions	15	26.8%	15.4%, 42.4%		
Definition not specified by study	153	15.8%	13.1%, 19.1%		
Search strategy				5.21	.16
Keyword	114	27.1%	21.4%, 33.6%		
Root/branch	122	23.0%	19.1%, 27.5%		
Review of previous meta-analyses and reviews	80	22.2%	17.6%, 27.6%		
Hand review of related journals	21	16.7%	11.5%, 23.6%		
Country study was conducted in				6.04	.01
United States	317	24.4%	21.4%, 27.7%		
Other	21	11.7%	6.2%, 20.9%		

*Statistically significant after implementing the Holm-Bonferroni correction.

Summary

In sum, the present meta-analysis of 338 studies yielded a weighted average dropout rate of 23.40%. Regarding client variables, dropout was not associated with age, employment status, education levels, female gender, race/ethnicity, service branch, rank, combat deployment history, service era, diagnosis, TBI history, service connection, and sample type (Service Members only, Veterans only, and mixed sample). However, higher dropout was linked to studies with a lower proportion of clients in committed relationships and in studies with a higher proportion of clients who were in the reserve component. In terms of therapist variables, therapist gender was not linked with dropout. Studies that leveraged experienced and trainee therapists yielded higher dropout rates than those that leveraged experienced therapists only. For treatment variables, dropout was not associated with theoretical orientation, whether interventions were manualized, treatment format (individual, group, and combined formats), level of intensity of services (outpatient, intensive outpatient, residential, and inpatient), and in person versus telehealth modality. Higher dropout rates were associated with interventions delivered in VA versus civilian settings as well as approaches that had a low versus high time limit. Dropout was not associated with some study variables, including effectiveness versus efficacy studies, search strategy, and country the study was conducted in. Dropout rates differed across articles leveraging various dropout definitions. Articles defining dropout using therapist report yielded higher dropout rates than articles defining dropout using failure to complete a protocol. Articles that did not define dropout yielded lower dropout rates compared to articles that defined dropout using any method (therapist report, failure to complete a protocol, stopped attending sessions, other definition).

Chapter 5: Discussion

In summary, the present meta-analysis leveraged data from 338 studies to evaluate psychotherapy dropout among Veterans and Service Members. These articles encompassed data from approximately 60 years of research (1958-2022) with 735,711 Veterans and Service Members who initiated psychotherapy. Most primary studies included in this meta-analysis were conducted with Veterans within the U.S. VA healthcare system, although studies conducted within U.S. DoD, U.S. civilian, and international settings were also represented. Interventions were primarily delivered by experienced therapists, used cognitive-behavioral and manualized approaches, leveraged a low time-limit (less than 21 sessions), and provided in outpatient settings. Additionally, studies leveraged a mix of in-person and telehealth modalities, as well as a variety of individual and group formats. Taken together, the studies included in the present meta-analysis reflect a range of military populations who sought a variety of treatment options within the VA, DoD, and community settings.

Weighted Dropout Rate

The overall weighted, meta-analytic dropout rate was 23.40% in this study. There was significant variability in the dropout rates observed between studies, where individual study estimates ranged from 0% to 92% of clients dropping out of treatment. This overall dropout rate was comparable to previous meta-analytic estimates of psychotherapy dropout among civilians, including 20% dropout from a large meta-analysis of civilian clients ($k = 669$; Swift & Greenberg, 2012) and 26% dropout among cognitive-behavioral therapies in civilians ($k = 115$; Fernandez et al., 2015).

In terms of previous meta-analytic findings among military populations, the present study's dropout estimate was comparable to one meta-analytic estimate of 24% ($k = 26$;

Edwards-Stewart et al., 2022). Those authors reviewed randomized controlled trials of treatments for trauma among active-duty Service Members and Veterans. However, the present study's estimate of 23% did appear to be somewhat lower than the estimate of 36% among OEF/OIF/OND Veterans seeking therapy for combat-related PTSD ($k = 20$; Goetter et al., 2015). It is unclear why these rates differed. Edwards-Stewart et al. (2022) attributed the discrepancy in dropout rates between their meta-analysis and the Goetter et al. (2015) meta-analysis to the latter primarily focusing on combat-related PTSD among Veterans from recent conflicts. However, we found that the percentage of clients with PTSD, percentage of clients with combat-related trauma, Veterans versus Service Members, and service era were not associated with dropout in covariate and moderator analyses from the present meta-analysis. Another possibility is that this discrepancy in dropout rates may be due to Goetter and colleagues (2015) primarily including studies delivered in U.S. VA settings. In contrast, the present study and the Edwards-Stewart et al. (2022) article included international samples and greater representation of studies from civilian and DoD settings. In turn, we found in the present meta-analysis that interventions delivered in VA settings yielded higher dropout rates than those delivered in civilian settings. Thus, it is possible that this difference in representation of treatment settings may underlie the discrepancies in dropout rates observed in these three meta-analyses.

Nevertheless, the present study represents important advancements in estimating dropout rates from psychotherapy among Service Members and Veterans. Specifically, this study included a range of client populations, presenting concerns, treatment approaches, treatment modalities, and treatment settings that were not represented in previous meta-analyses among military populations (Edwards-Stewart et al., 2022; Goetter et al., 2015). These considerations

are important, as those meta-analyses were relatively small and focused only on PTSD treatment in outpatient settings.

Although many clients from military populations experience PTSD symptoms (e.g., Fulton et al., 2015; Hoge et al., 2004, 2014; Williamson et al., 2018), they may also experience significant symptoms related to depression (Hoge et al., 2004; Thomas, 2010; Williamson et al., 2018), anxiety (Hoge et al., 2004; Williamson et al., 2018), substance use (Thomas, 2010; Wilk et al., 2010; Williamson et al., 2018), and suicidal ideation (Bryan et al., 2015), among others. This range in presenting concerns was also reflected in the client diagnoses reported in primary articles meeting this study's inclusion criteria. More commonly reported diagnoses included trauma-related diagnoses, substance use disorders, depressive disorders, sleep disorders, and anxiety disorders. The greater representation of these diagnoses among primary articles likely reflects common presenting concerns observed in military populations. Studies reporting clients with psychotic disorders, bipolar disorders, personality disorders, and OCD were represented to a lesser extent. Thus, our dropout estimate may better generalize to populations with trauma, substance use, depressive, sleep, and anxiety disorders as compared to those with diagnoses that were reported to a lesser extent (psychotic disorders, bipolar disorders, personality disorders, and OCD).

In addition, many interventions included in this study were developed to target trauma (e.g., CPT, PE, PCT), substance use, sleep (e.g., CBT for insomnia), and depression diagnoses (e.g., CBT for depression). However, relatively fewer appeared to explicitly target presenting concerns including anxiety disorders, psychotic disorders, bipolar disorders, personality disorders, and OCD. Thus, findings from this study may also better generalize to interventions that are specifically targeting trauma, substance use, sleep, and depression symptoms.

Nevertheless, the benchmark of 23% dropout ascertained in this meta-analysis may be a more applicable estimate to clinics and healthcare organizations (e.g., DoD, VA) who provide a wide range of comprehensive services to military populations beyond PTSD treatment only.

Covariates and Moderators of Dropout

Overall, there was significant heterogeneity in dropout estimates among individual studies included in the present meta-analysis. This finding suggests that the overall meta-analytic dropout rate of 23% may not apply to all client populations, treatment approaches, or treatment settings. Instead, there are significant covariates and moderators of dropout that may explain the variability in dropout rates between individual studies. As such, the present study explored a range of client, therapist, treatment, and study variables as covariates and moderators.

Client Variables

Qualitative findings. In the present study, we coded for a number of clients variables that yielded insufficient data (i.e., < 10 interventions with dropout rates) to be included in covariate and moderator analyses. These variables included diverse gender identity, diverse sexual orientation, adjustment disorder, service in WWI/WWII, stigmatizing mental health beliefs, and concerns about negative impacts of seeking therapy on one's career. In terms of gender identity, few studies ($k = 9$) reported the proportion of clients with diverse gender identities (e.g., transgender, non-binary, genderqueer). While this pattern of underreporting gender diversity is consistent with trends in both mental health and psychotherapy research more broadly (McCann et al., 2021), this does highlight a call for future studies to better assess gender diversity in psychotherapy research for military populations. This consideration is important given that the VA and (more recently) the DoD provide needed services to gender diverse military populations (Kauth et al., 2017) and that disproportionately high rates of gender diverse

individuals have served in the military (Shipherd et al., 2012). Additionally, individuals with diverse gender identities are also at higher risk for experiencing psychosocial stressors, such as prejudice and negative attitudes from other members of military communities (Conway et al., 2021), higher rates of MST (Beckman et al., 2018), and stalking (Schuyler et al., 2020).

Transgender and non-binary Veterans may face additional difficulties related to experiencing microaggressions from their therapists or even seeking services from therapists with gender specialty training and skills. In turn, a lack of trust in therapists (Fortney et al., 2022) and concerns about therapist competence (Hoge et al., 2014) have been associated with dropout among other military populations. Thus, future research examining dropout among transgender and non-binary clients may address important gaps in providing equitable and quality healthcare services.

Regarding sexual orientation, only four articles provided data about clients' sexual orientation. None of these studies directly tested the link between sexual orientation and treatment retention. Similar to gender identity, this lack of reporting likely reflects the overall dearth of psychotherapy research accounting for the experiences of individuals with diverse sexual orientations in therapy (Goldblum et al., 2017). These gaps in the literature have likely been exacerbated by policies within military settings, such as "Don't Ask Don't Tell," that created stigma surrounding diverse sexual orientations and hampered efforts to seek related funding and research (Burks, 2011). Given that Veterans with diverse sexual orientations report both positive (e.g., affirming and supportive relationship) and negative experiences in psychotherapy (e.g., therapist assumptions that the Veteran was heterosexual; Livingston et al., 2019), there may be room for further exploring options to improve their experiences in psychotherapy (e.g., experiences with front desk, navigating medical records, therapist training).

Regarding adjustment disorder, only 9 of 338 studies reported the prevalence of clients with such a diagnosis. Nugent and colleagues (2022) found that Service Members with an adjustment disorder diagnosis had lower dropout risk than those who did not have this diagnosis. It is unclear why this may be the case. As per the diagnostic criteria outlined in the DSM-5-TR (American Psychiatric Association, 2022), adjustment disorder is characterized by reporting marked distress about a given stressor for at least 3 months. That distress is required to exceed what might be expected after such an event; however, individuals cannot meet adjustment disorder criteria if their symptoms are better attributed to other mood disorders (e.g., PTSD, depressive disorders, and anxiety disorders). As a result, it may be that individuals with an adjustment disorder endorse less intensive symptoms overall as a function of these DSM-5-TR criteria. It is also possible that individuals with an adjustment disorder diagnosis may be experiencing fewer avoidance symptoms (e.g., social withdrawal as in depression, anxiety, or trauma-related disorders; avoidance of internal and external reminders of past trauma experiences as in PTSD) that may serve as an additional barrier to seeking psychotherapy. However, Nugent and colleagues (2022) found that diagnoses of other anxiety disorders, mood disorders, or PTSD were similarly associated with lower odds of dropout when compared to individuals who did not have these diagnoses. Thus, it may be instead that individuals who meet diagnostic criteria for a disorder may perceive that they have a greater need for treatment, which is associated with a higher likelihood of seeking and remaining engaged in therapy (Simon & Ludman, 2010).

Few studies ($k = 8$) included estimates of the proportion of clients who served in WWI and WWII, and no study directly examined the link between service during those eras and dropout. There may be several reasons why there was limited data available. First, during these

eras, there was limited knowledge of disorders (e.g., PTSD) that are commonly associated with military service (e.g., combat exposure). Indeed, even the diagnosis of PTSD as conceptualized today was not recognized until 1980, after Vietnam Veterans played a substantial role in advocating for this recognition (Andreasen, 2010). Second, psychotherapy was in its infancy during these eras, and modern-day cognitive-behavioral approaches that now constitute the majority of the care delivered in DoD and VA settings were just undergoing development in the 1970's and 1980's (Hollon & DiGuiseppe, 2011). This timeline is also reflected in the present meta-analysis, where the oldest primary article included was published in 1958, following the conclusion of the WWI, WWII, and Korean War service eras. Third, there are significantly fewer WWI/WWII Veterans left than Veterans from more recent eras, and thus this current group is less likely to be included in more recent research efforts.

There were insufficient primary articles to test whether stigma and career concerns served as moderators of dropout rates. Only Meis colleagues (2019) directly examined the link between stigma and dropout, and they found no significant association. No studies meeting inclusion criteria for this meta-analysis reported measures related to potential career concerns when seeking psychotherapy. This may be the case given that many articles included in this meta-analysis include data from existing medical records or randomized controlled trials that were not primarily focused on testing the link between survey measures (e.g., stigma, career concerns) and dropout. Although there was a dearth of articles meeting this study's inclusion criteria that examined stigma and career concerns, previous effectiveness (Browne et al., 2021; Harpaz-Rotem et al., 2014), qualitative (Naifeh et al., 2016), and survey studies examining dropout from a mixture of modalities (e.g., medication management, individual therapy, family and counseling therapy; Britt et al., 2015; Hoge et al., 2014; Jennings et al., 2016) have investigated the link

between stigma, career concerns, and dropout. While one study found that stigma was associated with lower dropout risk (Harpaz-Rotem et al., 2014), most other studies examining this link have found that stigma (Browne et al., 2021; Hoge et al., 2014; Jennings et al., 2016; Naifeh et al., 2016) and career concerns (Britt et al., 2015) are associated with higher dropout risk. However, the degree to which some of the findings from these studies generalize to psychotherapy is unknown, especially given that many of these studies examined dropout in mental health interventions beyond individual or group psychotherapy, such as psychiatric medication management and family counseling (e.g., Britt et al., 2015; Hoge et al., 2014; Jennings et al., 2016). Thus, investigating opportunities to address mental health stigma and career concerns within the context of individual or group psychotherapy may yield future insights into optimizing treatment retention.

Quantitative findings. In terms of client variables, there was sufficient data to evaluate other client variables as covariates and moderators of psychotherapy dropout. These included: sample type, age, employment, education, some college, relationship status, gender, race/ethnicity, service branch, component, rank, combat deployment, service era, prevalence of specific diagnoses in study samples, combat trauma, MST, traumatic brain injury, and service connection. In terms of sample type, articles with samples consisting of Veterans only, Service Members only, and mixed Veterans and Service Members yielded similar dropout rates. This finding contrasted those from a large study ($N = 4,556$ clients) examining psychotherapy delivered at an Army treatment facility (Nugent et al., 2022). In that study, Service Members were more likely to terminate than Veterans and military dependents. Taken together, this pattern of findings from the present study suggests that overall dropout rates between sample types are

similar, but within specific settings (e.g., Army military treatment facilities) it may be important to explore differences in dropout rates to identify opportunities for improving retention.

In the present study, age was not associated with dropout. This finding is in line with previous articles examining the age-dropout link in Service Members and Veterans (Gros et al., 2013; Harpaz-Rotem et al., 2014; Jennings et al., 2016; Niles et al., 2018). However, other individual studies examining this association among military populations have found that younger clients are at higher risk of dropping out (Eftekhari et al., 2020; Garcia et al., 2011; Jeffreys et al., 2014; Kehle-Forbes et al., 2016; Maguen et al., 2019; Seal et al., 2010). Previous meta-analyses examining dropout in civilians have also investigated this link. Whereas one large meta-analysis found that younger age was a risk factor for dropout (Swift & Greenberg, 2012), other meta-analyses have found no association (Gersh et al., 2017; Wierzbicki & Pekarik, 1993). Overall, it is unknown why there are discrepancies between individual studies and meta-analyses examining the age-dropout association. Findings from the present study suggest that Service Members and Veterans across the lifespan may be equally likely to engage in treatment.

Regarding SES, we found no association between employment and dropout in the present study. These findings largely mirror those of Swift and Greenberg (2012), where they found employment was not linked with dropout in a large-scale meta-analysis among civilian populations. For education, we found that both the mean years of education completed and proportion of samples completing some college or more were not linked with dropout. While Swift and Greenberg (2012) found that the mean years of education was not linked with dropout, they found that studies with a lower proportion of clients reporting at least some college education (Swift & Greenberg, 2012). Although findings from the present study suggest that employment and education may not be linked with dropout in military populations, it is notable

that employment and education are among other factors that may influence socioeconomic status (SES). It is possible that exploring these other factors may be an important consideration. For example, Veterans (Browne et al., 2021) and Service Members (Naifeh et al., 2016) both report finances as a barrier to engaging in treatment. Transportation issues (Browne et al., 2021) and living farther away from services (Seal et al., 2010) also serve as barriers to treatment completion. Thus, it may be that investigating ways to address these barriers associated with SES may serve as potential mechanisms for retention in psychotherapy.

In this meta-analysis, studies with a greater proportion of clients in committed relationships were more likely to complete treatment. This finding is in line with one study in which married Veterans were more likely to complete PE and CPT (Maguen et al., 2019). The link between being in a committed relationship and greater likelihood of completing treatment also parallels findings from a large meta-analysis of psychotherapy dropout in civilians (Swift & Greenberg, 2012). One explanation for this pattern is that there are specific behaviors that are occurring in the context of committed relationships that are protective against dropping out. Results from one study (Meis et al., 2019) highlighted the potential protective roles of encouragement to face distress as well as overall positive relationship functioning. Specifically, those authors found that Veterans who had loved ones (e.g., intimate partner, family, friend) who encouraged them to face distress were two times more likely to complete PTSD treatment than those who did not. This association, however, was moderated by the degree to which the Veterans' relationships with those loved ones were characterized by interpersonal strain. Specifically, Veterans in relationships characterized by low and moderate levels of relationship strain were more likely to complete treatment when provided with such encouragement. Veterans in relationships with high levels of strain who were provided such encouragement, however,

were just as likely to complete treatment as those who were not provided with encouragement to face distress (Valenstein-Mah et al., 2019). Taken together, these findings suggest that social support from an intimate partner may be protective for completing psychotherapy among Veterans and Service Members, and future research may explore specific behaviors that account for this relationship.

This future work may also utilize theoretical frameworks used to explain psychotherapy dropout (see Chapter 2 for a review of these frameworks). For example, the anticipated costs and benefits model may suggest that there are aspects of being in committed relationships that affect clients' appraisals of the costs and benefits of therapy. Dropping out of therapy, especially when one's partner strongly encourages treatment engagement, may have salient consequences on relationship functioning (e.g., strain due to not working on one's mental health symptoms, lack of improvement in relationship functioning). Further, behavioral reinforcement principles may suggest that increased exposure to reinforcers, such as praise from one's partner for engaging in and achieving treatment goals in therapy, enhances the likelihood of treatment completion. In addition, the theory of planned behavior emphasizes the potential role of subjective norms, where one believes that others support their decision to engage in behavior change (in this case, treatment engagement). It is possible that subjective norms are particularly salient in the context of committed relationships, as opposed to those from other unit members, friends, or other family. Nevertheless, investigating aspects of committed relationships that may be protective against dropout may yield insights into optimizing treatment engagement.

For gender, the present study found that the percentage of female-identified clients was not linked to dropout. Notably, many of these studies did not specify whether "male" and "female" corresponded with biological sex or gender identity, nor did they include other diverse

gender identities (e.g., transgender, non-binary, genderqueer). Future research should address these gaps in the literature by increasing efforts to define whether biological sex or gender identity are reported and adopt a more inclusive approach to assessing gender. Nevertheless, findings from this meta-analysis regarding a lack of a significant gender-dropout link are in line with individual studies with military populations that also found no link (Edwards-Stewart et al., 2022; Jennings et al., 2016; Kehle-Forbes et al., 2016; Nugent et al., 2022), although others found that male Veterans were at greater risk for dropping out (Harpaz-Rotem & Rosenheck, 2011; Seal et al., 2010). While the lack of a significant link between gender and dropout in this study aligns with some dropout meta-analyses (Gersh et al., 2017; Lewis et al., 2020; Wierzbicki & Pekarik, 1993), Swift and Greenberg (2012) instead found that women were more likely to complete psychotherapy than men. It is unclear why there are discrepancies between the gender-dropout association in this article and the Swift and Greenberg meta-analysis. It is possible that some scripts typically associated with masculinity (e.g., masking specific emotions while expressing others, like anger) are more pervasive in military cultures more broadly, and that women who served in these institutions are more likely to endorse such scripts that may make it difficult to engage in therapy (Danforth & Wester, 2014). In turn, the differences between men and women in endorsing these scripts that interfere with psychotherapy engagement may be less pronounced in military populations as they are in civilian populations. Testing whether these gender-related scripts account for potential links between gender and psychotherapy dropout may be one future direction that can aid psychotherapy engagement efforts.

In this study, we found that race/ethnicity was not associated with dropout. This finding is in line with individual articles examining this link with military populations (Garcia et al., 2011; Gros et al., 2013; Harpaz-Rotem et al., 2014; Jennings et al., 2016; Nugent et al., 2022;

Seal et al., 2010). Other individual studies that found a significant link are largely mixed. Specifically, one study found a higher dropout risk among those identifying as Hispanic compared to another ethnicity as well as identifying as an “Other” race compared to those identifying as Black (Harpaz-Rotem & Rosenheck, 2011). Another study found that Black Veterans were more likely to complete PE and CPT (Maguen et al., 2019). Importantly, we examined this link between racial/ethnic identity and dropout among individuals identifying as non-Hispanic White, Latine, Black, Asian, and Native American in this meta-analysis. While this approach reflects greater diversity in identities studied compared to other dropout meta-analyses (e.g., Fernandez et al., 2015; Gersh et al., 2017; Goetter et al., 2015; Lewis et al., 2020; Swift & Greenberg, 2012), it does not account for variations within or outside of these identities, clients identifying with multiple racial/ethnic groups, intersections with other identities (e.g., experiences of Black transgender women Veterans from Black Christian communities), or the challenges individuals may face with therapists who come from another racial/ethnic group (e.g., invalidating, insulting, or discriminatory comments from therapists). Taken together, while race and ethnicity were not linked to dropout in this large-scale meta-analysis, there are important gaps in understanding how individuals’ experiences related to race and ethnicity impact their experiences seeking treatment among military populations.

In this meta-analysis, the proportion of study samples from Army, Navy, Marines, and Air Force branches yielded similar dropout rates. These findings are consistent with results from one large study of Veterans (Seal et al., 2010). In that study, Veterans from all four service branches were equally likely to complete nine or more sessions (Seal et al., 2010). To this writer’s knowledge, no other study has investigated the role of service branch and dropout. Although it is not clear why this association is under-studied, it could be due to the difficulty in

obtaining samples that report service in multiple branches and how DoD healthcare services were historically separated by service branch. Nevertheless, findings from this meta-analysis suggest that Service Members and Veterans from various service branches may be equally likely to complete treatment.

Regarding component, we found that studies with a greater proportion of clients from the reserve component were more likely to drop out. This finding contrasts those from individual studies, where reserve component members were more (Maguen et al., 2019) or as likely to complete psychotherapy as active-duty Service Members (Harpaz-Rotem et al., 2014; Seal et al., 2010). Specific drivers of the link between reserve component membership and higher dropout remain unknown. One explanation may be related to the unique challenges that reserve component members face. Specifically, active-duty Service Members are expected to serve full-time in military settings, where there are opportunities for social support from other Service Members with whom they work and may even share living space. Members of reserve components (e.g., National Guard, Army Reserves) are instead embedded in civilian communities and are expected to serve those communities on a state level while maintaining civilian employment. Thus, some of the unique challenges that members of the reserve component face include navigating dual civilian employment, barriers in knowing where to seek healthcare, as well as geographical and social isolation from other military communities (Gorman et al., 2011). It is possible that these factors impact retention in treatment, as navigating work and scheduling demands (Browne et al., 2021; Hoge et al., 2014; Naifeh et al., 2016) and deficits in social support (Lutz et al., 2018) are linked with greater dropout risk. Utilizing an anticipated costs and benefits model framework, these barriers may serve as potential costs that outweigh the potential benefits of completing therapy. It is also possible that the relative lack of

social support from other reserve component members decreases the likelihood of experiencing subjective norms that would facilitate treatment completion. Together, exploring reserve component member decision-making using qualitative or quantitative research methods may yield insights into potential avenues for enhancing their engagement in therapy.

In the present study, we found no link between the proportion of study samples with officers and dropout. Two individual studies found conflicting results: in one study Veterans seeking CPT and PE were more likely to complete if they were officers when they served (Maguen et al., 2019), and in the other study former officers and enlisted Veterans ($N = 49,425$) seeking treatment for a range of presenting concerns were equally likely to complete. While findings from this study suggest that there is no link between rank and dropout across a range of presenting concerns and populations, it is possible that there are moderators of this association that may yield insight into the role of rank in psychotherapy engagement. For example, it may be that rank serves as a moderator for only some treatments, such as CPT and PE (Maguen et al., 2019). The role of rank may also differ depending on the treatment setting. Anecdotally, Veterans who served as officers sometimes report that they avoided seeking psychotherapy as an officer during active-duty service due to concerns about confidentiality within small communities (e.g., being seen at a military treatment facility by the other Service Members they lead) and how those confidentiality breaches could affect their leadership. Thus, it may be that these concerns related to rank serve as a deterrent for completing psychotherapy in DoD but not in VA or civilian settings.

In terms of combat deployment history, we found no link between the proportion of samples that completed at least one combat deployment and dropout. The existing literature is mixed in terms of the nature of the association between combat exposure and dropout risk.

Specifically, some studies have found no link between dropout and the following: the overall number of combat experiences (Gros et al., 2013), identifying deployment-related concerns as distressing (Gros et al., 2013), any deployment history (Nugent et al., 2022), and number of deployments completed (Harpaz-Rotem et al., 2014; Seal et al., 2010). However, Maguen and colleagues (2019) found that a history of any combat deployment as well as multiple deployments were linked to lower dropout risk. Together, findings from this study suggest that having at least one combat deployment is not associated with dropout. Notably, this overall measure of combat deployment does not account for other facets of how combat deployment may affect one's mental health or engagement in treatment. For example, there may be increased risk for more severe mental health symptoms after repeated deployments (Able & Benedek, 2019). Additionally, specific experiences during combat (e.g., killing others, witnessing the injury and/or death of civilian children) that violate one's personally held beliefs about how the world should operate (i.e., moral injury) may present unique challenges in completing psychotherapy for trauma (Litz et al., 2009).

The degree to which individual study samples included clients that served in recent conflicts (OEF, OEF, and OND), the Gulf Wars, Vietnam, and Korea was not associated with dropout risk in this meta-analysis. These findings mirror two studies that also found no link between service era and dropout (Jeffreys et al., 2014; Niles et al., 2018). Other studies investigating this link have yielded mixed results, including a higher dropout risk among OEF/OIF/OND compared to Vietnam Veterans (Kehle-Forbes et al., 2016), higher dropout risk among Vietnam compared to OEF/OIF/OND Veterans after controlling for age (Harpaz-Rotem & Rosenheck, 2011), and higher dropout risk among Korean versus Vietnam Veterans after controlling for age (Harpaz-Rotem & Rosenheck, 2011). It is unclear why there are mixed

findings in the literature. It is worth highlighting that, although there appears to be no meta-analytic era-dropout association, there are cohort differences between these service eras in terms of the state of mental health knowledge and access to services during those respective eras that may be important for therapists and their clinics to conceptualize with individual clients. For example, during WWI/WWII and the Korean War, PTSD was not yet formally recognized as a mental health disorder. Later, Vietnam Veterans played an important role in advocating for the recognition of PTSD as a diagnosis. While Gulf War era Veterans benefited from this increased recognition of mental health and PTSD in particular, there were additional improvements in trauma-related service provision that have occurred more recently during the OEF/OIF/OND era. These include large-scale efforts to expand access to mental health care (Preston, 2018; Shiner et al., 2022) and the rollout of evidence-based practices like CPT and PE on a wider scale within VA and DoD settings (Karlin et al., 2010). Additionally, there have been improvements in increased recognition and services available for some presenting concerns, such as MST, that have occurred during the more recent OEF/OIF/OND era (Foyne et al., 2018). Together, these cohort differences likely contribute to how individual Veterans and Service Members view their mental health symptoms and what it means to seek psychotherapy for those symptoms. Although service era may not affect dropout on a large scale, therapist awareness of how these contexts influence their clients' etiological beliefs, experiences with seeking mental healthcare, and comfort in therapy may be protective against dropout on an idiographic level.

We found no link between the proportion of study samples that met criteria for a range of mental health disorders and symptoms, including trauma, combat trauma, MST, anxiety disorders, depressive disorders, bipolar disorders, psychotic disorders, substance use disorders, personality disorders, obsessive-compulsive disorder, and traumatic brain injury history.

Regarding trauma, the proportion of clients meeting criteria for a trauma-related disorder was not linked to dropout. This finding is somewhat surprising given high estimates of PTSD dropout from studies examining trauma-focused treatment in military populations (e.g., 36% meta-analytic dropout rate from Goetter et al., 2015). However, it is notable that in this study we examined the proportion of clients meeting criteria for a trauma-related disorder rather than what kinds of activities may be linked to dropout when specifically targeting trauma symptoms. Future investigation of the role of therapy activities for PTSD-related treatment dropout may be an important consideration. Meta-analyses have found higher rates of dropout among trauma-focused treatments (e.g., CPT, PE) than non-trauma-focused treatments (e.g., PCT; Belsher et al., 2019; Imel et al., 2013; Lewis et al., 2020). Nevertheless, the operationalization employed in this study is reflective of actual clinical practice, where trauma symptoms are not always the client's most distressing concern and are frequently co-morbid with other symptoms (e.g., depression, sleep issues, anxiety). One limitation of examining trauma-related disorders as a whole is that this operationalization does not account for individual posttraumatic stress symptoms that are associated with higher rates of dropout, including distress and avoidance (Eftekhari et al., 2020). It may be that individual PTSD symptoms, such as these, are of greater clinical utility in predicting whether clients will remain in treatment. Taken together, findings from this study suggest that Veterans and Service Members who present with trauma-related disorders are not at greater risk of dropping out than those who do not present with such disorders.

In addition, we explored whether endorsing trauma symptoms specific to combat experiences and MST were linked with dropout. We found no significant association with dropout for either variable. Previous work highlighted how Veterans whose index trauma in PE entails childhood-related trauma may be more likely to complete than Veterans whose index

trauma entails combat-related trauma (Eftekhari et al., 2020). Another study found that Veterans reporting MST were more likely to complete PE (Maguen et al., 2019). It is unclear why these findings are discrepant between the present meta-analysis and these individual findings. One possible explanation is that in this meta-analysis, we examined samples reporting combat trauma and MST who were engaged in psychotherapy for a range of presenting concerns and using a variety of treatment approaches. The individual studies highlighted (Eftekhari et al., 2020; Maguen et al., 2019) both focused instead on Veterans engaged in PE, which is a demanding protocol that requires clients repeatedly relive their trauma experiences (i.e., imaginal exposure) and face trauma reminders (i.e., in vivo exposure). Therefore, it is possible that trauma types are a potential moderator for PE dropout rather than an overall moderator for psychotherapy across a range of presenting concerns.

In this study, the proportion of samples who met the diagnostic criteria for an anxiety disorder was not linked to dropout risk. Nugent and colleagues (2022), in contrast, found that clients diagnosed with an anxiety disorder reported lower dropout rates compared to clients who were not diagnosed with an anxiety disorder. Overall, there were relatively fewer articles that reported anxiety disorders at all ($k = 83$) as compared to trauma-related disorders ($k = 287$) that were included in the present study. This pattern likely reflects the overall dearth of psychotherapy research examining effect treatments for anxiety disorders among military populations (Kitchiner et al., 2012). Nevertheless, this gap is concerning given elevated rates of some anxiety disorders among military versus civilian populations (Rosellini et al., 2015; Trautmann et al., 2016) and recent findings indicating anxiety disorder prevalence has increased in Service Members over time (Russell et al., 2022). As a result, very little is known about dropout risk among anxiety-focused treatments within military populations, and future research

is needed to address these gaps. It is possible that exploring the link between specific anxiety symptoms, psychotherapy tasks, and treatment engagement can aid the conceptualization of dropout risk among military populations. For example, it may be difficult for clients to engage in some psychotherapy tasks (e.g., exposure work where one faces situations or reminders of distressing activities, mindfulness exercises, discussing challenging thoughts or emotions) when experiencing common symptoms of anxiety disorders, such as high levels of internal sensitivity to distress-related cues, difficulty tolerating uncertainty, negative thinking patterns, and engagement in avoidance behaviors (Boswell et al., 2013; Mohammadkhani et al., 2016).

Results from this study suggest that there is no link between the proportion of samples with depressive disorders and dropout risk. Previous findings are largely mixed. Specifically, mood disorder diagnoses, including depression, were protective against dropout compared to those without mood disorder diagnoses in one study in a DoD setting (Nugent et al., 2022), but others have found no link among Veterans (Gros et al., 2013; Holder et al., 2019). Factors underlying these mixed findings remain unknown. It could be that individuals with a comorbid depressive disorder could have greater symptom severity and thus a higher perceived need for treatment, which is a protective factor for treatment completion (Simon & Ludman, 2010). Nevertheless, our findings suggest that having a depressive disorder more broadly is not associated with dropout risk. Future work may explore whether specific aspects of depression symptoms directly affect treatment engagement. The theory of planned behavior, for example, posits that one's perceived control over their behavior influences treatment completion (Ajzen, 1991), and negative cognitions associated with depression may adversely affect one's perceived self-efficacy beliefs. As another example, there is meta-analytic support for the link between being in a later stage of change (e.g., action phase) and greater likelihood of treatment

completion (Krebs et al., 2018), but depression symptoms like low motivation and/or negative beliefs about oneself or the future may hinder the transition to action or maintenance phases of implementing behavior change.

Further, we investigated whether bipolar and psychotic disorders (e.g., schizophrenia, schizoaffective disorder) were linked with psychotherapy dropout, and found no association. One study found that Veterans with bipolar disorder or schizophrenia were less likely to complete PE than those without such diagnoses (Maguen et al., 2019); however, little is known about the potential role of these disorders and dropout risk among primary research articles. Although there is a dearth of literature examining the role of these diagnoses on treatment engagement among Service Members and Veterans, it is worth noting that difficulties managing active hypomanic, manic, or psychosis symptoms may make it difficult (and potentially contraindicated) to regularly engage in structured, cognitive- or exposure-based treatments that are frequently delivered in DoD and VA settings. Thus, future work may explore the role of active symptoms or challenges with medication management in treatment engagement, as these may be better indicators of dropout risk than assessing bipolar and psychotic disorder diagnoses alone.

In this study, the proportion of study samples that met criteria for a substance use disorder was not linked with dropout in the present study. Findings among individual studies that have examined this link among military populations are largely mixed. Specifically, clients with substance use disorders had lower rates of dropout than clients without substance use disorders in one study (Nugent et al., 2022). Among Veterans engaged in PE, one study found that those who smoked tobacco were less likely to complete their courses of PE (Maguen et al., 2019). One survey study examining dropout among mental health treatment more broadly (e.g., individual

and group counseling, psychiatric medication management, family or couples counseling) found that alcohol use problems were linked to dropout, but this relationship became non-significant after controlling for the effects of rank, gender, and functional impairment (Britt et al., 2015). While findings from this study suggest that meeting criteria for a substance use disorder alone is not linked with dropout risk, it is possible that there are specific processes associated with substance use that may hinder treatment engagement. For example, individuals with substance use disorders may experience difficulties with impulsivity in terms of acting without thinking and reacting after experiencing negative emotions (Littlefield et al., 2012). Both of these constructs are in turn linked with worse substance use treatment outcomes (Hershberger et al., 2017). These characteristics associated with substance use may also make it more difficult to engage in cognitive-behavioral treatments for comorbid mental health disorders, such as those for anxiety and trauma that leverage experiencing or repeated exposure to difficult emotions. Additionally, substance use disorders may be particularly likely to co-occur with other mental health disorders in Veterans (Seal et al., 2011). This link may be driven by bi-directional associations between substance use and other mental disorders. For example, individuals may use substances to avoid experiencing distress or emotions with other mental health disorders, but avoidance may amplify existing mental health symptoms over time (Boden et al., 2014). This bi-directional relationship may be problematic when trying to engage in psychotherapies for substance use and/or mental health, as it may be difficult to treat substance use in the presence of co-morbid disorders causing significant distress. Similarly, it may be difficult to engage individuals in psychotherapies for other mental health disorders that target experiential avoidance when those individuals may be using substances as an avoidance-based coping strategy. Taken together, meeting criteria for a substance use disorder alone may not be

associated with increased dropout risk. Future work may explore whether other mechanisms associated with substance use (e.g., impulsivity, avoidance-based coping strategies, comorbid substance use and mood disorder symptoms) predict psychotherapy engagement.

There was no link between the prevalence of personality disorders and psychotherapy dropout in this meta-analysis. This finding is somewhat surprising given that another large-scale meta-analysis found that personality disorders were a risk factor for dropping out in civilian populations (Swift & Greenberg, 2012). It is unclear why these findings are discrepant. While all personality disorders are characterized by significant impairment in interpersonal, cognitive, and emotional functioning (American Psychiatric Association, 2022), it is possible that discrepant findings among dropout meta-analyses may be due to the differences in personality disorder prevalence in military and civilian populations. For example, a recent meta-analysis ($k = 27$; 7,161 Veterans) examining the prevalence of personality disorders found that rates of paranoid and borderline personality disorders were particularly high among Veterans (Edwards et al., 2022). In contrast, a meta-analysis of personality disorder prevalence among community samples among Western countries ($k = 27$, 113,998 individuals) found that obsessive-compulsive personality disorder, antisocial personality disorder, and schizotypal personality disorder were the most prevalent. These differences in prevalence rates may be important for understanding treatment engagement, as some disorders such as borderline personality disorder are more well-researched in terms of having available, effective treatment options (e.g., dialectical behavior therapy for borderline personality disorder; Linehan et al., 1991) compared to other personality disorders. Taken together, meeting diagnostic criteria for a personality disorder may not be linked with dropout risk, and research investigating dropout among Service Members and Veterans with personality disorders is needed.

We explored the link between the prevalence of obsessive-compulsive disorder among studies and dropout, and found that there was no association. The prevalence of obsessive-compulsive disorder was added as a covariate in the present study due to an unexpected number of studies that reported rates of the disorder among their samples ($k = 23$). Although this disorder is understudied in military populations compared to civilian populations (McIngvale et al., 2019), it is nevertheless associated with significant distress and impairment (Kessler et al., 2005). This distress and impairment are important considerations among military populations, particularly given their impacts on quality of life and job performance among Service Members and Veterans.

We found that the proportion of clients with a history of experiencing a TBI was not linked to dropout. This variable was also added to the present study as a covariate due to a high number of studies that reported such histories ($k = 42$) among their study samples. Additionally, the association between brain injuries and psychotherapy engagement is an important consideration among military populations. Specifically, such injuries have become increasingly common after recent service conflicts (e.g., OEF, OIF, OND) have seen a rise in blast-related injuries associated with the increased use of weapons like improvised explosive devices (Zeitzer & Brooks, 2008). One meta-analysis examining the link between blast-related brain injuries and related consequences found that such injuries were significantly associated with difficulties in executive function, verbal memory, and processing speed among members of military populations (Karr et al., 2014). A history of TBI during military service may also elevate one's risk for experiencing other mental health disorders, including PTSD, depressive disorders, substance use disorders, and anxiety disorders (Greer et al., 2020). However, many cognitive-behavioral treatments for mental health that are widely disseminated among military populations

rely on one's ability to learn new cognitive and emotion regulation skills, such as learning new associations between previously distress-provoking stimuli and new safety cues (e.g., exposure, cognitive restructuring) and tolerating distressing emotions. Thus, adapting cognitive-behavioral approaches may be one avenue for enhancing treatment retention and outcomes among those with active TBI symptoms. One randomized controlled trial tested PTSD treatment response between standard CPT and a version of CPT specifically tailored to incorporate cognitive rehabilitation strategies (SMART-CPT) among Veterans with comorbid PTSD and TBI (Crocker et al., 2018). They found that Veterans engaged in SMART-CPT reported better outcomes than those in standard CPT (Crocker et al., 2018). Thus, further investigating methods of enhancing standard cognitive-behavioral interventions to meet clinical needs for individuals with a TBI history may be warranted. Findings from this analysis suggest that an overall history of any TBI is unrelated to dropout, although it is unclear whether this association may differ by the severity of TBI symptoms at the time of treatment or the specific intervention used.

In the present study, the proportion of Veterans receiving any amount of service-connected disability (i.e., service connection) was not linked with dropout. Individual studies have yielded mixed findings, where some have found that receipt of service connection was linked with increased dropout risk (Gros et al., 2013; Harpaz-Rotem & Rosenheck, 2011) and one study found no link (Garcia et al., 2011). It is notable that the present study found no link between service connection and dropout risk, as the impact of service connection on therapy engagement is somewhat controversial (Strom et al., 2012). In one study assessing therapist attitudes and beliefs, therapists reported that Veterans seeking service connection are less engaged in and will benefit less from therapy than those who are not (Sayer & Thuras, 2002). Another study found that, after controlling for rates of PTSD diagnoses between groups,

Veterans applying for service connection reported worse symptom severity and functional impairment than Veterans who were not (Frueh et al., 2003). Nevertheless, findings from this meta-analysis suggest that receiving any amount of service connection may not be associated with dropout. One limitation of the operationalization of service connection in the present study, however, is that we were unable to examine the link between service connection ratings that are scored from 0% to 100% and the likelihood of dropout. Addressing this gap is also difficult using meta-analytic methods, as most studies did not report an average service connection rating that would be required to test this association. Nevertheless, findings from one study suggest that this might be an important avenue for additional research exploring how service connection impacts psychotherapy engagement. Specifically, the authors used data from 410,924 VA clients who were recently diagnosed with depressive, anxiety, or trauma-related disorders (Cully et al., 2008). They found that the relationship between service connection and engagement in individual, group, and family therapy differed depending on the service connecting rating: Veterans with 1-49% service connection were more likely to receive one or more sessions, whereas Veterans with 50-100% service connection were less likely to receive one or more sessions (Cully et al., 2008).

Therapist Variables

Qualitative findings. We examined a number of therapist variables as covariates of dropout that yielded insufficient data (i.e., < 10 interventions with dropout rates) to be tested as a covariate. These variables included the mean age of study therapists, therapists' service histories (active-duty therapists, reserve component therapists, therapist who were Veterans themselves, and civilians without military service), as well as therapist race and ethnicity. Regarding therapist age, only 2 of 338 studies reported the mean age of therapists included in the respective

study. No study directly tested the link between therapist age and dropout. In a large-scale meta-analysis of dropout in civilian populations, the therapist age was not associated with dropout (Swift & Greenberg, 2012). The degree to which therapist age plays a role in military populations remains unknown. It is also possible that assessing the nature of the dynamic between both clients' and therapists' ages may yield even more insight into the role of therapist age and dropout risk. For example, when clients perceive themselves as being significantly older than their therapists, this dynamic could negatively impact clients' perceptions that their therapist understands and is capable of helping them. Future research, therefore, may consider how client-therapist dynamics related to age influence dropout risk.

Of the studies meeting inclusion criteria for this meta-analysis, few studies reported data in terms of therapists' service histories, including the proportion of study therapists who were active-duty ($k = 3$), from the reserve component ($k = 2$), Veterans themselves ($k = 4$), or civilians ($k = 7$). Only one study (Nugent et al., 2022) examined the role of therapist service history on dropout in an Army setting. The authors found that active-duty therapists yielded the highest dropout rates, followed by civilian and reserve component therapists (Nugent et al., 2022). It is unclear why this was the case. One possibility is that active-duty therapists are more likely to PCS than their counterparts, and therapist PCS has been reported as a reason for dropping out among Service Members (Hoge et al., 2014). Nevertheless, future work may investigate whether factors associated with service histories, such as the degree of military cultural awareness or clients' preferences for their therapists' service histories (e.g., preferring a non-Veteran or Veteran), may impact client engagement in psychotherapy.

Overall, few studies included in this meta-analysis provided data related to therapists' racial and ethnic identities, including the proportion of therapists who were White ($k = 5$), Black

($k = 2$), Latine ($k = 2$), and Asian ($k = 2$). No study directly examined the link between therapist race/ethnicity and dropout. One meta-analysis of psychotherapy dropout among civilian populations found no link between the proportion of studies' therapists that were White and dropout (Swift & Greenberg, 2012). Although investigating the link between therapist demographics and dropout is an important consideration, it may be of even more utility to investigate therapist skills or behaviors related to navigating racial and ethnic diversity to yield insights into potential targets for improving engagement in psychotherapy. These skills and behaviors may include fostering therapists' cultural humility and cultural competence as well as mitigating therapist engagement in behaviors like making invalidating or discriminatory comments (i.e., microaggressions).

Quantitative findings. In this meta-analysis, the proportion of study therapists identifying as female and therapist level of experience were tested as a covariate and moderator of dropout, respectively. In terms of therapist gender, we found that this variable was not linked with dropout. This finding is consistent with the lack of a significant association between therapist gender and dropout among civilian psychotherapy clients (Swift & Greenberg, 2012). In terms of individual study findings, one study found that Veterans seeking psychotherapy for PTSD from female therapists were more likely to complete treatment than Veterans with male therapists (Shiner et al., 2017). However, the authors found a significant interaction between therapist and Veteran gender, where male therapists matched with male Veterans had the highest dropout risk (Shiner et al., 2017). Findings from another study suggest that client-therapist dyads with female therapists and male civilian clients reported stronger therapeutic alliances than dyads with male therapists and male clients (Bhati, 2014). Stronger therapeutic alliances are in turn meta-analytically associated with lower dropout rates (Sharf et al., 2010). It is unknown why

male client-therapist dyads appear to be at the highest risk of dropout and report weaker therapeutic alliances in these studies. Future work may investigate the potential underlying roles of client preferences for therapist gender or whether endorsing some gender-related scripts hinder clients' expression of specific emotions (e.g., shame, guilt, grief) in therapy.

In terms of therapist experience, we found higher dropout rates among studies using mixed samples of trainee and experienced therapists compared to studies using experienced therapists only. Among previous meta-analyses in civilian populations, Swift and Greenberg (2012) found higher dropout rates among trainee therapists as well as mixed therapist samples. Fernandez and colleagues (2015) found no association between therapist licensure status and therapy dropout. Nevertheless, our findings highlight the potential utility of future dropout prevention efforts targeting trainees providing psychotherapy to military populations. This consideration may be important within the VA system in particular, given that it is the largest organization in the U.S. that provides clinical training for working with military populations (Strom et al., 2012). For example, future work may leverage the anticipated costs and benefits model to investigate psychotherapy dropout among clients receiving treatment from trainee therapists. This framework highlights the potential utility of assessing clients' perceptions of the potential benefits (e.g., less strong beliefs that therapy may help them achieve their treatment goals) and costs (e.g., viewing therapy as potentially harmful when perceiving a trainee therapist as having a lack of knowledge about how to help them) of completing therapy that may be unique to clients receiving care from trainee therapists.

Treatment Variables

In this meta-analysis, we examined several treatment variables as moderators of psychotherapy dropout, including theoretical orientation, whether approaches were manualized,

whether treatments were time-limited, setting in which treatments were delivered, intervention format, intensity of care, and treatment modality. In terms of theoretical orientation, dropout rates did not differ across cognitive-behavioral, supportive or client-centered, or integrative approaches using elements from multiple orientations. Few studies included psychodynamic ($k = 5$) or solution-focused ($k = 2$) interventions. In a large-scale study of dropout in civilian populations, dropout rates also did not differ between cognitive-behavioral, supportive, integrative, psychodynamic, and solution-focused treatments (Swift & Greenberg, 2012). It may be that dropout rates do not differ across treatments leveraging different theoretical orientations for a range of presenting problems; rather, it may be that dropout rates differ by the type of intervention or protocol used for a particular presenting problem. For example, Swift and Greenberg (2014) found that dropout rates significantly differed across interventions used for depression, eating disorders, and PTSD among civilian populations. While integrative interventions resulted in the lowest rates of dropout for depression and PTSD, dialectical behavior therapy (DBT) resulted in the lowest rates of dropout for eating disorders. Dropout rates did not significantly differ across different approaches used to target other presenting problems, including bereavement, borderline personality disorder, generalized anxiety disorder, obsessive-compulsive disorder, other personality disorders, panic disorder, psychotic disorder, social phobia, and somatoform disorders (Swift & Greenberg, 2014). Taken together, dropout rates may not be linked to specific theoretical orientations when examined across presenting problems. Rather, it may be that the type of therapeutic activities employed for specific presenting concerns better explains dropout risk, particularly among psychotherapies targeting PTSD.

Evaluating dropout across psychotherapies targeting PTSD may be particularly important among military populations, where significant resources have been allocated to leveraging such approaches. Among PTSD treatments, three meta-analyses have found that interventions focused on clients' memories of their trauma experiences (e.g., CPT, PE) result in higher dropout rates than those that do not (e.g., PCT; Belsher et al., 2019; Imel et al., 2013; Lewis et al., 2020). Notably, trauma-focused cognitive-behavioral therapy (CBT) approaches tend to have the most research supporting the use of those approaches to reduce PTSD symptoms (Cusack et al., 2016; Van Etten & Taylor, 1998; Watts et al., 2013). However, these trauma-focused interventions are frequently distressing for clients (and sometimes their therapists). Many of these interventions also require daily homework activities that can be equally distressing. Additionally, PTSD symptoms often worsen in the beginning of treatment when trauma-related memories and reminders are no longer avoided, and Veterans' perceptions of symptoms worsening are qualitatively reported as a reason for dropping out (Koenig et al., 2016). As such, these approaches require significant motivation and readiness on the part of clients, and many therapists use shared decision-making and their sense of whether clients are ready for such work in selecting treatments to address PTSD symptoms (Osei-Bonsu et al., 2017). Anecdotally, many clients also prefer to work on emotion regulation or social support skills, which have not been traditionally included in substantial detail among trauma-focused treatments like CPT and PE. While trauma-focused treatments do work, non-trauma-focused interventions that incorporate these preferences interventions may be just as effective (Belsher et al., 2019). In their meta-analysis, Belsher and colleagues found that one of these non-trauma-focused interventions, PCT, is in fact non-inferior to other trauma-focused interventions in terms of the treatments' effects on PTSD symptoms. In addition, PCT yielded lower dropout rates than trauma-focused

interventions (Belsher et al., 2019). Taken together, dropout risk among individuals meeting PTSD criteria may be equivalent to other individuals meeting criteria for other disorders.

However, findings from the literature suggest that the specific interventions employed in PTSD treatment may be particularly important when conceptualizing dropout risk in Service Members and Veterans.

Regarding treatment manualization, we found that this variable was not linked to dropout risk in our study. This finding contrasts those from Swift and Greenberg (2012), who found that manualized approaches yielded lower dropout rates than non-manualized approaches. Although it is unknown why these findings are discrepant, it is possible that this is a function of the practice culture within DoD and VA settings. Specifically, over the past couple of decades these settings have typically leveraged manualized, cognitive-behavioral therapies (e.g., Doran et al., 2019). This culture is reflected even in this meta-analysis where approximately two-thirds (288 of 338 articles) of interventions tested were cognitive-behavioral in theoretical orientation and another two-thirds (289 of 338) were manualized. Thus, it may be that whether treatments are manualized or not is not a reliable predictor of dropout risk among Service Members and Veterans.

In line with this manualized, cognitive-behavioral practice culture, most studies in this meta-analysis ($k = 252$) examined interventions with a low time limit (20 or fewer sessions). Those approaches with either low or no time limits yielded higher dropout rates than approaches with a higher time limit (21 or more sessions) in this study. This finding contrasts results from Swift and Greenberg (2012), where approaches without a time limit yielded higher dropout rates than those with either a low or a high time limit. Although it is unclear why this is the case, it is possible that these findings from the present meta-analysis could be explained by the prevalence

of weekly, trauma-focused interventions (e.g., CPT, PE, virtual reality exposure for PTSD) that were included in this low time limit group. In turn, these trauma-focused approaches have yielded higher rates of dropout overall (Imel et al., 2013; Lewis et al., 2020). Alternatively, it could be that clients who seek more intensive services that have a higher time limit (e.g., intensive outpatient programs) require a greater commitment to therapy (e.g., deliberately taking time away from regular activities like work and family obligations), and clients who are in more advanced stages of change (e.g., contemplation, action) are less likely to drop out (Krebs et al., 2018).

For the present study, clients who sought services from VA settings were more likely to drop out than those seeking services from civilian settings. This discrepancy in dropout rates is notable given that there were no differences in dropout rates between Service Members, Veterans, and mixed Service Member and Veteran settings. In other words, the discrepancy between dropout rates in VA and civilian settings cannot be better explained by the specific client population served in those settings (i.e., Service Members, Veterans, or both population types). Thus, it may be that there are aspects associated with VA versus civilian services that best explain this finding. It is unclear what those aspects may be. One possibility is that the long wait times associated with seeking VA care serves as a barrier, and longer wait times have been highlighted by Veterans as a barrier to engaging in psychotherapy (Fortney et al., 2022). Another possibility relates to the VA's practice culture with delivering time-limited, manualized, evidence-based protocols (Doran et al., 2019). While there are many important advantages of these approaches (e.g., evidence-based, widely available training resources, organizational support), requirements of these approaches are often demanding (e.g., weekly homework assignments that may be uncomfortable, structured sessions entailing often emotionally-

distressing content). It may be that one of the downsides of this approach is that they require a higher level of readiness to change than other treatments, and clients who are less ready to change are more likely to drop out (Krebs et al., 2018). Nevertheless, future research identifying potential underlying drivers of the elevated dropout risk among VA settings is warranted.

In terms of treatment format, dropout rates did not differ across individual therapies, group therapies, and approaches that combined both individual and group services. This finding parallels the Swift and Greenberg (2012) meta-analysis among civilian populations, which also found no differences in dropout rates across individual, group, and combined individual and group therapies. However, PTSD-specific dropout meta-analyses among civilians (Imel et al., 2013) and OEF/OIF/OND Veterans (Goetter et al., 2015) found that there were higher dropout rates among group versus individual therapies. In contrast, a more recent meta-analysis among PTSD treatment efficacy studies found no difference in dropout rates (Lewis et al., 2020). Taken together, it may be that individual and group therapies may yield similar dropout rates across a range of presenting problems, but that there may be differences in dropout rates by treatment format for some specific presenting problems.

Regarding the intensity of services, there were no significant differences in dropout rates among therapies delivered in outpatient, intensive outpatient, residential, and inpatient settings. This finding is similar to that of Wierzbicki and Pekarik's (1993) meta-analysis, which found no differences in dropout rates across university settings, private clinics, public clinics, and other settings. However, a larger meta-analysis found that dropout rates were highest among department clinics and counseling centers embedded in university settings compared to other settings (outpatient care delivered in other settings, research or specialty clinics, and inpatient settings; Swift & Greenberg, 2012). One possibility for discrepant findings across the present

meta-analysis and the Swift and Greenberg meta-analysis may be that studies with military populations were not typically delivered in department clinics or university counseling centers. Such settings often have services that are delivered by trainees, who are more likely to have higher dropout rates than experienced clinicians (e.g., Swift & Greenberg, 2012). Thus, it is possible that trainee status may explain discrepancies between the setting-dropout findings in this study and the Swift and Greenberg (2012) study.

In this meta-analysis, clients initiating in-person and telehealth services were equally likely to complete treatment. This finding is similar across meta-analyses examining dropout with civilians (Fernandez et al., 2015) and military populations seeking PTSD treatment (Edwards-Stewart et al., 2022; Goetter et al., 2015). The convergence of these meta-analytic findings suggest that treatment modality is not linked to dropout risk.

Study Variables

Several study variables were tested as covariates and moderators of dropout rates, including the year of publication, study type, dropout definition, search strategy, and the country the study was conducted in. We found that the year of publication was not significantly linked with dropout in the present study. This suggests both that dropout rates are neither improving nor worsening among military populations, highlighting the potential utility of efforts to facilitate treatment engagement among military populations.

In terms of the role of the type of study conducted, effectiveness and efficacy studies yielded similar dropout rates in the present study. This finding is consistent with a meta-analysis on PTSD treatment dropout among Service Members and Veterans (Goetter et al., 2015) that also found no significant differences in dropout rates among effectiveness and efficacy studies. In line with this pattern, a meta-analysis of CBT approaches found similar dropout rates across

RCTs and non-RCT studies among civilians (Fernandez et al., 2015). In contrast, Swift and Greenberg (2012) found higher rates of dropout among effectiveness versus efficacy studies with civilian populations. It is unclear why there are discrepancies between these studies. One possibility is that there is a greater likelihood that treatments were manualized and had a low time limit among effectiveness and non-RCT studies included in the present meta-analysis, the trauma-focused meta-analysis among Service Members and Veterans (Goetter et al., 2015), and the CBT-focused meta-analysis (Fernandez et al., 2015). Both a lack of a treatment manual and no time limits were linked to greater dropout risk in the Swift and Greenberg (2012) meta-analysis. Thus, it is possible that the effectiveness studies included in the Swift and Greenberg (2012) meta-analysis had a greater likelihood of having treatments that were not manualized and/or were not time-limited, in turn elevating the dropout rates observed across their effectiveness studies.

Regarding dropout definition, we found that articles leveraging therapist report (40% dropout rate) yielded higher dropout rates than articles leveraging failure to complete a protocol (30% dropout rate) and articles that did not specify how they defined dropout (15% dropout rate). These findings regarding therapist report are in line with civilian meta-analytic findings, where therapist report was associated with higher dropout rates than other definitions (Swift & Greenberg, 2012). It is likely that dropout rates estimated using therapist report tend to be higher compared to other methods given that it may be a particularly sensitive method of assessing dropout (i.e., therapists are aware that they did not agree to mutually terminate with their clients). One important limitation of this approach, however, is that therapists are not always attuned to clients' perspectives on their progress in treatment. In turn, therapists may perceive clients as

having dropped out even if clients viewed treatment as having met their goals. Thus, operationalizing dropout using therapist report may also overestimate dropout rates.

Further, we found that articles that did not define dropout resulted in lower dropout rates than articles that defined dropout using any method (therapist report, failure to complete a protocol, stopped attending sessions, and other). These results underscore the importance of considering dropout definition when researching and evaluating the literature regarding treatment engagement in military populations. For example, when selecting potential treatment approaches, therapists, clinic administrators, and policymakers may note that articles that fail to define dropout could be more likely to underestimate dropout rates than studies that do define dropout. This may be an important consideration given that nearly half of the studies included in this meta-analysis ($k = 153$) did not specify how they operationalized dropout.

Search strategy method (keyword, root and branch, review of previous meta-analyses and systematic reviews, and hand search) was not linked to dropout in the present study. In contrast, Swift and Greenberg (2012) found that articles identified using keyword searches were associated with higher dropout rates than articles identified using other methods. The role of search strategy method remains unclear, and it is unknown why findings are discrepant between these two meta-analyses. Nevertheless, findings from this study suggest that the search strategy employed for evaluating dropout in military populations may not yield significantly different dropout rates.

This meta-analysis primarily leveraged studies conducted in the U.S. ($k = 317$). However, articles ($k = 21$) from seven other countries – Australia, Croatia, Iran, Israel, Netherlands, New Zealand, and the United Kingdom – were also represented in this meta-analysis. We found that the country in which studies were conducted in was not linked with dropout rates in this meta-

analysis. It is notable that most of these countries tend to ascribe to Western cultures, and findings from this study more broadly may generalize to these cultures and regions better than others (e.g., military populations in Asia and Africa). This focus on Western countries was also likely influenced by including only articles published in English. The degree to which dropout rates as well as covariates and moderators from the present meta-analysis may apply to other contexts remains unknown.

Limitations

There are several limitations that apply to the present meta-analysis. First, it is likely that there were articles providing a psychotherapy dropout rate for Service Members and Veterans that were not included in the present study. Although we aimed to be as comprehensive as possible, the primary objective of this study was to obtain a representational sample of articles reflecting the literature conducted thus far. In line with this objective, we reviewed 34,490 titles and abstracts across five different search strategies. Thus, we are relatively confident that we have included a representational sample of articles published thus far.

Second, this study examined dropout across a range of presenting concerns and approaches, and the presence of significant heterogeneity suggests that our findings may not generalize to all contexts. For example, relatively more studies reported client diagnoses related to trauma-related disorders, substance use disorders, depressive disorders, sleep disorders, and anxiety disorders in this meta-analysis. Relatively fewer studies reported client diagnoses related to psychotic disorders, bipolar disorders, personality disorders, and OCD. It may be that our findings particularly generalize to populations and treatment setting that address the former presenting concerns. Additionally, our study tested a range of covariates and moderators across these presenting concerns. It may be that findings for specific covariates and moderators to not

generalize to certain populations, interventions, or treatment settings. For example, it could be that dropout does not differ between individual and group therapy across a variety of presenting concerns; instead, dropout may differ among PTSD-focused studies (Goetter et al., 2015). Nevertheless, the strategy of including a range of presenting concerns and approaches has important implications for therapist, clinic leadership, and policymakers who manage clinical populations that may have a variety of concerns. This consideration may be particularly important for military populations, where the literature may disproportionately focus on PTSD research despite having a clinical population that can present with a variety of other concerns (e.g., depression, anxiety, suicidality, serious mental illness).

Third, like other dropout meta-analyses (e.g., Fernandez et al., 2015; Goetter et al., 2015; Swift & Greenberg, 2012), we individually tested whether covariates and moderators were linked with dropout. These analyses were conducted in this fashion given that studies typically did not report all variables of interest examined in the present study, and it may limit the generalizability of study findings to only those that have the ability (e.g., large randomized controlled trials) to collect all variables. This limitation is still important, however, because it means that we cannot directly test whether some variables better explain dropout than other variables. In this meta-analysis, for example, dropout was higher among approaches with low or no time limits and delivered in VA settings as compared to approaches with high time limits and delivered in civilian settings, respectively. It is possible that either setting or time limitation could best explain both findings. For example, the link between VA settings and dropout risk could be better explained by the greater likelihood that the VA will deliver and/or study certain approaches with low time limits (e.g., CPT, PE). Primary studies are therefore needed to test whether some variables may better predict dropout than others.

Fourth, this study only included published articles, which may contribute to the risk of publication bias that has been highlighted as a limitation of psychology research more broadly (van Aert et al., 2019). Notably, dropout is typically a secondary outcome in psychotherapy research, where the primary outcomes are typically focused on targeting presenting concerns (e.g., symptoms or functional impairment). As a function of these foci, studies may be published regardless of whether dropout rates are particularly high or low in a given study. This may in turn mitigate the risk of publication bias in this dropout meta-analysis.

Conclusions and Future Directions

In sum, the present study obtained an overall, average dropout rate of 23.40% among Service Members and Veterans. Higher dropout risk was linked to having fewer clients in committed relationships, including more members of the reserve component, engagement in approaches with low or no time limits compared to high time limits, having interventions delivered by a mixture of trainee and experienced therapists versus experienced therapists only, interventions delivered in VA rather than civilian settings, among studies defining dropout using therapist report versus failure to complete treatment, and among articles that defined dropout using any method versus articles that did not define dropout. The practice, clinic leadership, research, policy, dropout intervention, and theoretical implications of these findings are discussed below.

Practice Implications

Findings from this study may inform therapists' conceptualization of dropout risk among Service Members and Veterans in a number of ways. First, most demographic variables (e.g., age, female versus male gender, race/ethnicity) were not linked to dropout in the present study. This suggests that such demographics may not be nomothetic indicators of dropout risk.

However, clinicians may particularly attune to the circumstances surrounding clients' relationship status given that being in a committed relationship was associated with lower dropout risk in this study.

Second, many military service characteristics were not linked with dropout. These characteristics included service branch, rank, combat deployment history, and service era. Such characteristics are regularly collected in clinical settings specializing in working with military populations. While helpful for other aspects of case conceptualization (e.g., military cultures, exposure to potentially traumatic events, emergence and context of mental health symptoms), they may be less helpful for therapist assessment of dropout risk. However, members of the reserve component were more likely to drop out than those from the active component. It may be helpful for therapists to help clients address potential barriers to engaging in services when working with current or former reserve component members. For example, therapists working with these clients may connect them to resources (e.g., case managers or social workers) to help navigate transportation reimbursement and work demands. This connection could also entail encouraging clients to engage with their peer groups (e.g., alternative resources like recreation therapy, support or treatment groups) when indicated and/or available.

Further, it may be particularly important for VA therapists to track that Veterans' service connection status was not associated with dropout risk. Among therapists serving within the VA system, therapists may hold views that service-connected Veterans are less engaged in treatment (Sayer & Thuras, 2002). While it is possible that Veterans with service connections may encounter difficulties with attending treatment (e.g., more severe symptoms that make treatment engagement challenging, secondary gain associated with remaining symptomatic) on an idiographic level, findings from this meta-analysis suggest that service connection may not be a

reliable indicator of dropout likelihood more broadly. Thus, it may be important for therapists to attune to their own perceptions of how Veterans with service connections may engage in therapy when conceptualizing dropout risk.

Third, this study found that the presence of specific symptoms and histories were not associated with dropout risk. These included: trauma-related disorder, combat trauma, MST, anxiety disorder, depressive disorder, bipolar disorder, psychotic disorder, substance use disorder, personality disorder, obsessive-compulsive disorder, and TBI history. These null findings suggest that the presence alone of these symptoms and histories do not predict dropout risk. Instead, therapists may instead attune to other factors to assess dropout risk, such as the type of therapy activities employed (e.g., exposure work targeting trauma) or other individual client factors (e.g., clients' stages of change).

Fourth, therapists who are trainees themselves or supervisors overseeing trainees may be particularly attentive to clients' engagement in treatment. It is unclear why trainee status may be linked to higher dropout rates. However, it could be helpful for therapists providing supervision as well as trainees themselves to seek opportunities for trainees to develop clinical skills that are recommended for mitigating dropout risk. These skills may include providing role induction, incorporating clients' preferences for treatment, facilitating hope, leveraging measurement-based care, assessing and discussing the therapeutic alliance, and engaging in shared decision-making (Swift et al., 2012).

Fifth, this study examined the link between dropout and a number of treatment factors, including time limits, treatment modality (in person versus telehealth), and treatment setting. In terms of time limits, it may be helpful for therapists to track that approaches with low or no time limits are linked with greater dropout risk than approaches with high time limits. Therapists'

interventions to reduce dropout (e.g., motivational interviewing to facilitate movement through the stages of change, reinforcing efforts to engage in therapy, measurement-based care) may therefore be particularly helpful with clients seeking short-term, time-limited therapy (e.g., general mental health clinics in the VA and DoD, outpatient PTSD clinical teams in the VA). Regarding treatment modality, clients attending in person or via telehealth platforms were equally likely to complete treatment in this study. This finding is notable given the rapid expansion of telehealth services after the COVID-19 pandemic, and highlights that engagement in telehealth and in person services may be equivalent. Last, clients seeking services within the VA system were more likely to drop out compared to those seeking services in civilian settings. It may be that it is particularly important for VA therapists to be attuned to potential barriers to psychotherapy engagement in these settings.

Clinic Leadership and Administrative Implications

The meta-analytic estimate of 23.40% dropout in this study may serve as an important benchmark for clinics serving military populations with a range of presenting concerns. This estimate also highlights potential room for improvement in terms of treatment engagement among military populations. Some populations that may be particularly important for clinic leadership to potentially allocate resources to facilitate treatment engagement may include those within the reserve component, trainee therapists, and the provision of therapies with low time limits. Additionally, findings from this study suggest that VA-affiliated clinics may particularly benefit from resources promoting treatment engagement.

This study also highlighted opportunities for addressing systemic barriers related to client diversity, particularly among clients with diverse sexual orientations and gender identities. Few primary articles in this study – including effectiveness studies that leveraged chart review data –

reported sexual orientation and gender identity. Advocating for the inclusion of these variables within electronic measurement systems can help address important gaps in knowledge. Notably, in DoD settings this recommendation may come hand-in-hand with discussions of how to protect Service Members' rights to serve openly given recent changes in DoD policy regarding gender identity.

Further, this study found that there was a higher risk of dropping out among clients receiving care from trainee therapists. Given that the VA is the largest system providing training to therapists working with military populations, clinic and training program leaders may consider the incorporation of skills to mitigate dropout risk. Such topics might include optimizing client hope, providing role induction, attunement to the therapeutic alliance, and measurement-based care (Swift et al., 2012).

Research Implications

There are several opportunities to better understand the role of client, therapist, treatment, and research variables in dropout research among military populations. For client variables, most demographic and service-related characteristics were not related to dropout. However, many of these variables (e.g., gender, race and ethnicity, rank, service branch) only assess whether individuals ascribe to a specific label. Such variables do not evaluate how having those labels may influence their lived experiences, including in psychotherapy. It may be the case that some experiences, such as the implications of intersecting identities and experiencing invalidating comments related to clients' identities from therapists, are in fact important in conceptualizing dropout among military populations.

Regarding military service characteristics, little is known about how occupational specialties (e.g., military occupational specialty [MOS], area of concentration [AOC]) may

influence one's engagement in psychotherapy. These occupational specialties can broadly determine what kinds of experiences one may encounter as a Service Member. For example, some occupational specialties likely entail exposure to combat, and there are also other occupational specialties (e.g., engineering, healthcare) that serve as combat support. Regarding those that entail combat exposure, there may be aspects of exposure to specific combat experiences, such as killing others, that may be particularly linked to experiences like moral injury (e.g., engaging in actions that violate one's moral beliefs). In turn, the elevated levels of guilt and shame linked with moral injury (Litz et al., 2009) may later make it difficult to engage in therapies that require a discussion of past trauma experiences. In terms of combat support roles, there may be specific job duties that may be linked with unique experiences within military service and mental health. For example, Service Members who served as healthcare professionals (a combat support role) reported higher levels of psychological distress than Service Members who were not in one study (Jones et al., 2008). It is possible that there are specific aspects of these experiences, such as trauma occurring in the context of providing healthcare to others (e.g., witnessing the injury of others, handling human remains), that may account for this elevated distress. Future work that investigates how specific aspects of occupational duties, such as combat roles, combat support roles, providing healthcare, and others, may be linked to treatment engagement.

Although exploring the empirical link between one's job duties and treatment engagement is an important consideration, this link may be particularly difficult to investigate for several reasons. First, there are numerous occupational specialties, which can also vary between service branches. In turn, this diversity of occupational specialties can serve as a barrier to comparing treatment engagement across a large number of occupational specialties. This

limitation may be particularly salient within VA systems, which provide psychotherapy to Veterans from all service branches. Second, Service Members may have more than one occupational specialty over the course of their military careers, or even serve more than one service branch. Third, many Service Members with specific occupational specialties may engage in other duties that are not affiliated with their original specialty (e.g., dental hygienist assisting medical teams in providing healthcare). As a result, future work exploring the link between occupational experiences may do so by assessing specific duties performed, rather than one's occupational specialty. Further, findings from this study highlighted how little is known about the role of therapists' characteristics in treatment engagement among military populations. This pattern underscores the need for future research to more thoroughly describe therapist characteristics among military populations. In addition, studies that did assess these characteristics typically only tested whether those therapist characteristics predicted dropout risk without accounting for how those therapist characteristics may interact with client characteristics. In the future, testing potential dyadic interactions between clients' and therapists' characteristics may provide further insight into how therapists engage clients in therapy. For example, clients who perceive their therapist as significantly older or younger than themselves could feel like their therapist does not fully understand them. In turn, this dynamic may decrease clients' hope that their therapists can help them, increasing the likelihood that they may drop out. There are significant opportunities for exploring how client-therapist characteristics interact to predict dropout risk beyond age, including clients' and therapists' race/ethnicities, sexual orientations, gender identities, spiritual and religious beliefs, SES, ability status, and military service histories (e.g., active-duty, combat Veteran, civilian).

In addition, many of the primary articles included in this meta-analysis targeted PTSD symptoms. This focus reflects significant efforts to enhance the quality of services for Service Members and Veterans presenting with these concerns. While important for expanding the reach of trauma-focused services, the downside of this historical focus is that it neglects to address other types of symptoms that can emerge after experiencing potentially traumatic events (e.g., depression, anxiety, anger reactions, suicidality; e.g., Contractor et al., 2015; Hoge et al., 2004; Kimerling et al., 2016). Notably, there have been efforts to expand the reach of interventions targeting presenting concerns like sleep (e.g., CBT for insomnia), substance use (e.g., motivational interviewing), and depression (e.g., cognitive-behavioral as well as acceptance and commitment therapies for depression) within the DoD and VA systems. The current state of the psychotherapy literature among military populations, as reviewed in this meta-analysis, suggests that there are additional opportunities for developing a more robust psychotherapy research literature that supports healthcare systems and therapists in providing psychotherapy for a broader range of concerns beyond PTSD.

In the present meta-analysis, the operationalization of dropout was significantly linked to dropout rates. Specifically, articles that defined dropout using any method yielded higher dropout rates than articles that did not define dropout. Among articles that did define dropout, those using therapist report yielded higher dropout rates than those using failure to complete a treatment protocol. These discrepancies in dropout rates by operationalization have important implications for future research efforts. First, future psychotherapy studies among military populations should describe how they obtained their dropout rate. Nearly half of primary articles included in this study did not do so, highlighting room for improvement in this practice. Second, therapist report may be even more sensitive to whether the client unilaterally terminated treatment (i.e., able to

detect termination of treatment due to a lack of mutual agreement with the therapist) than when using failure to complete a specific protocol. Researchers may therefore consider incorporating therapist report into their work, when feasible.

Policy Implications

There were insufficient primary articles that included measures of stigma and career concerns in this meta-analysis. However, stigma as well as potential career repercussions associated with seeking psychotherapy may still be important considerations for organizations that serve Service Members and Veterans. While many studies highlight the potential negative impacts of these policies on treatment-seeking (Britt et al., 2015; Hoge et al., 2014; Kim et al., 2010), findings from one study highlight how such policies may facilitate treatment engagement for some individuals (Curley et al., 2019). Overall, Curley and colleagues found that the majority of active-duty Soldiers reported that being placed on a behavioral health profile limiting their deployability would motivate them to engage in treatment, particularly if they reported they would seek care from a therapist who could implement a profile (e.g., military treatment facilities). While a minority reported that such profiles would negatively impact treatment seeking and treatment engagement (Curley et al., 2019), these findings highlight that the link between these policies and treatment engagement may be more nuanced than previously thought.

Thus, future work may optimize behavioral health readiness by exploring how these policies and related pathways may best facilitate care. For example, Curley and colleagues (2019) found that Service Members preferred that their chain of command become aware of their behavioral health concerns primarily through profiles or during crisis situations. In this study, most Service Members also reported preferences against their chain of command learning about a behavioral health condition affecting deployability during Soldier Readiness Processing

screening for symptoms (Curley et al., 2019). It may be that evaluating the differential impact of these pathways (e.g., profiles, Soldier Readiness Processing) on treatment engagement could highlight future directions for further engaging Service Members in therapy during specific phases of the deployment cycle.

Notably, these efforts examining the link between readiness and treatment engagement were primarily focused on active-duty Service Members. Findings from the present study suggest that efforts targeting Service Members affiliated with the reserve component may be an important consideration. Specifically, clients currently or previously affiliated with the reserve component were at greater risk of dropping out in the present study. This link is particularly concerning from a readiness perspective, since dropouts may have lingering symptoms (Straud et al., 2019) that can negatively affect deployability and job performance more broadly. While it is unclear why reserve component members were at an increased risk of dropping out, it may be useful to explore policies that can facilitate their engagement in care (e.g., expanding access to and eligibility for services).

In this study, clients seeking care at VA systems yielded higher dropout rates than those seeking care within the civilian sector. This finding highlights potential policy initiatives that may allocate resources to address this increased risk within the VA. For example, many of the interventions that have been disseminated thus far are specifically focused on approaches that target presenting concerns. More recently, there have been initiatives targeting common factors, such as mandating the use of measurement-based care for some interventions and incorporating shared decision-making trainings into the Talent Management System within the VA. Some clinics have also implemented opportunities for incorporating client preferences when assigning clients to therapists. However, there are additional opportunities to enhance treatment retention

using strategies like the provision of role induction, enhancing client hope in early treatment phases, and enhancing the therapeutic alliance (Swift et al., 2012). Therapist trainings may be one avenue for disseminating these skills to enhance retention. For example, Nugent and colleagues (2022) implemented a two-hour therapist training ($n = 371$ therapists, $n = 6,077$ clients) across Army military treatment facilities that aimed to bolster skills in assessing and discussing the alliance as well as incorporating routine outcome measures into practice. Dropout rates were significantly lower after therapists attended the training (Nugent et al., 2022). Thus, policies that target therapist training may be one avenue for further facilitating treatment engagement in VA healthcare systems.

The present study's findings regarding dropout risk and dropout definition also have implications for tracking dropout in applied clinical practice settings. Therapist report may be particularly sensitive to actual client dropout than other methods. In current practice, it is very difficult to obtain such reports of dropout within systems across DoD, VA, and civilian sectors. Specifically, termination and reasons for discharge are typically documented in a discharge note within the client's medical record. Potential templates used to complete such documentation may vary clinic-to-clinic, and perhaps even between individuals within clinics that are part of the same system. This variability makes it difficult to obtain therapist report when using existing data to evaluate dropout, as it often requires time- and labor-intensive chart reviews to collect that data. Given that dropout is a concern among military populations – particularly in VA settings – it may be helpful to create better infrastructure to track dropout over time. For example, evidence-based practice (EBP) dissemination efforts (e.g., PE, CPT, CBT and acceptance and commitment therapy for depression) have rolled out mandated, national templates for completing EBP notes that allow for better tracking of EBP use across the VA

system. Adding a discharge note template or tracking system that more easily allows for identifying reasons for termination (e.g., successful treatment completion, dropout) may be one policy-related opportunity to better understand and address dropout within these large healthcare systems serving Service Members and Veterans.

Dropout Intervention Implications

Overall, findings from our meta-analysis suggest that one of four Service Members and Veterans prematurely terminate psychotherapy. Thus, interventions targeting dropout among military populations are warranted. Our results related to covariates and risk factors for dropout may inform future directions for optimizing dropout interventions.

Specifically, we found that studies with a greater proportion of clients in committed relationships yielded lower dropout rates. This finding underscores the potential utility of exploring specific relationship behaviors (e.g., encouragement to engage in difficult therapy tasks) that could account for this link. Such behaviors may in turn be targeted by future interventions, such as psychoeducational interventions for clients' loved ones (e.g., ways partners can support their loved ones in psychotherapy). In addition, this link highlights the potential utility of identifying and extending supports for clients who are not in committed relationships. Examples of these supports in DoD settings may include targeting support from other unit members (e.g., ways unit members can provide support to other Service Members engaged in therapy) or among leadership (e.g., interventions to encourage psychotherapy completion). Among both DoD and VA settings, clinics may expand the reach of interventions that facilitate connection to others, such as peer support groups, recreational therapy, and attending psychotherapy groups.

In this meta-analysis, primary articles with a greater proportion of clients in the reserve component had higher dropout rates. This result suggests that it may be helpful to address barriers that these Service Members and Veterans face, such as geographical isolation, lack of connection to other Service Members compared to their active component counterparts, or difficulties accessing mental health services. For example, future work may explore the implementation of policies or telehealth interventions that aim to address (1) geographical barriers and (2) opportunities to engage with other Service Members (e.g., support groups, peer interventions). In addition, mental health literacy interventions that seek to provide information about how to obtain (e.g., resources familiar with military populations) and navigate psychotherapy (e.g., role induction interventions) as a reserve component member may be another future avenue.

Studies that leveraged both experienced and trainee therapists had higher dropout rates than studies that leveraged only experienced therapists. Thus, incorporating skills for optimizing treatment engagement (e.g., building client hope, role induction, measurement-based care, assessing and discussing the alliance; Swift et al., 2012) may be particularly important to address among training programs. These opportunities may arise during trainee didactics as well as training supervisors to monitor and foster these skills among their supervisees.

In this meta-analysis, studies delivering interventions with high time limits yielded lower dropout rates than those with low or no time limits. While the underlying mechanisms that may explain this finding are unknown, future work may explore whether increasing access to treatments with higher time limits reduces dropout rates. In addition, this finding suggests that interventions with low (e.g., CPT, PE, CBT for depression) or no time limits may particularly benefit from the incorporation of strategies to reduce dropout. For example, a motivational

interviewing intervention reduced dropout rates compared to the control condition in one study with OEF/OIF Veterans engaged in psychotherapy (Seal et al., 2012). This finding is also in line with the meta-analytic link between being more ready to change and greater likelihood of treatment completion (Krebs et al., 2018)

Further, interventions delivered in VA settings yielded higher dropout rates than those delivered in civilian settings. It is unclear why this is the case. Nevertheless, VA settings may particularly benefit from resources addressing premature termination. Such resources might include addressing barriers to engagement (e.g., long wait times) as well as implementing and disseminating interventions targeting therapist strategies for mitigating dropout (e.g., measurement-based care, assessing and discussing the alliance). As an example, Nugent and colleagues (2022) delivered a two-hour therapist training targeting measurement-based care and the alliance, which was delivered using both in person and telehealth formats across military treatment facilities. They found that this intervention decreased dropout rates from 72.5% to 67.1% among Service Members. Future work may therefore explore similar therapist trainings that are tailored to VA settings.

Theoretical Implications

Several theoretical frameworks that seek to explain psychotherapy dropout have been developed, including the anticipated costs and benefits model, stages of change model, the theory of planned behavior, and behavioral principles (see Chapter 2 for a review of these frameworks). Overall, the anticipated costs and benefit model may best capture our findings related to covariates and moderators linked to dropout risk, including those related to committed relationships, reserve component, and therapist training. First, we found that studies with a greater proportion of clients in committed relationships yielded lower dropout rates. This finding

could be accounted for by considering the potential costs and benefits of prematurely terminating when navigating committed relationships. Anecdotally, for example, clients may present for treatment primarily because their partner strongly encouraged or required them to. While the client may weigh potential costs associated with attending (e.g., not believing therapy will help them, transportation or time barriers), it is possible that potential benefits associated with attending in these cases (e.g., interpersonal harmony with partners) outweighs these potential costs. Thus, the anticipated costs and benefits model captures more facets of the decision-making process that clients may engage in when determining whether to complete therapy.

Second, we found that studies with a greater proportion of clients from the reserve component had higher dropout rates. This finding could be accounted for by elements of the anticipated costs and benefits model. Specifically, it may be that the potential benefits of seeking therapy are outweighed by a number of factors that are unique to reserve component members. In this case, it may be that potential costs include the time demands needed to travel to therapy while also maintaining civilian employment, especially given that reserve component members may be more geographically isolated from related resources (e.g., care through military treatment facilities). Further, more limited access to psychotherapy resources provided through DoD and VA settings could also be perceived as a potential time and/or financial cost to completing therapy. In terms of potential benefits, it could be that reserve component members perceive treatment completion as less helpful as their active component counterparts. For example, they may have more limited access to social support from other Service Members or related communities to complete psychotherapy, or to receive support and validation about what it is like to seek psychotherapy services.

Third, the anticipated costs and benefits model may offer an explanation regarding why interventions delivered by both trainee and experienced therapists yielded higher dropout rates than interventions delivered by experienced therapists alone. Specifically, it may be that clients who receive care from trainee therapists modify their evaluations of potential costs and benefits of completing therapy. For example, clients could have doubts about whether trainee therapists could help or understand them as compared to more experienced therapists. This perception may be reinforced by therapist behaviors (e.g., lack of confidence in delivering interventions, demonstrating a lack of relevant knowledge to clients). In turn, this evaluation may decrease the perceived benefits from therapy and enhance the likelihood clients will prematurely terminate.

In sum, it is possible that the anticipated costs and benefits model can explain covariate and moderator findings from this study. In addition, this model highlights potential avenues related to future research. For example, researchers may investigate the specific behaviors or attitudes that explain how being in committed relationships may influence clients' decision-making process related to the costs and benefits of completing therapy. In addition, qualitative work may investigate reserve component members' evaluations of the potential costs and benefits of therapy completion. Identifying these costs may provide insight into future avenues for research optimizing treatment completion with this population, such as addressing time or financial barriers. Better identifying clients' evaluations of the costs (e.g., time barriers, emotional impact) and benefits (e.g., lower outcome expectations) when receiving care from trainees may also highlight potential opportunities to enhance treatment engagement among Service Members and Veterans.

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Appendix 1: Articles Included in Present Meta-Analysis

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Appendix 2: Summary of Findings from Select Meta-Analyses Examining Dropout in Civilian and Military Populations

Table 6

Summary of Findings from Select Meta-analyses Examining Psychotherapy Dropout in Civilian and Military Populations

Variable	Civilian Populations			Military Populations	
	Present study (<i>k</i> = 338)	Swift & Greenberg (2012) (<i>k</i> = 669)	Fernandez et al. (2015) (<i>k</i> = 115)	Goetter et al. (2015) (<i>k</i> = 20)	Edwards- Stewart et al. (2022) (<i>k</i> = 26)
Dropout rate estimate	23.40%	19.70%	26.20%	36.0%	24.20%
Military sample type	NS (between Veteran, SM, and mixed samples)	-	-	-	-
Age	NS	↑ age, ↓ dropout	-	-	-
Employment	NS	NS	-	-	-
Mean years education	NS	NS	-	-	-
Some college	NS	NS	-	-	-
Committed relationship	↑ in relationships, ↓ dropout	↑ in relationships, ↓ dropout	-	-	-
Cisgender female	NS	↑ female, ↓ dropout	-	-	-
Race/ethnicity	NS (White, Latine, Black, Asian, and Native American)	NS	-	-	-
Service branch	NS (Army, Navy, Marines, and Air Force)	-	-	-	-
Reserve component	↑ in reserves, ↑ dropout	-	-	-	-
Rank	NS (officers vs. enlisted)	-	-	-	-
Combat deployment	NS	-	-	-	-
Service era	NS (OEF/OIF/OND, Gulf Wars, Vietnam, and Korea)	-	-	-	-
Trauma disorder	NS	NS	-	-	-
Combat trauma	NS	-	-	-	-
Military sexual trauma	NS	-	-	-	-
Anxiety disorder	NS	NS	-	-	-
Depressive disorder	NS	-	Higher dropout risk	-	-
Bipolar disorder	NS	-	-	-	-
Psychotic disorder	NS	NS	-	-	-

Variable	Civilian Populations			Military Populations	
	Present study (<i>k</i> = 338)	Swift & Greenberg (2012) (<i>k</i> = 669)	Fernandez et al. (2015) (<i>k</i> = 115)	Goetter et al. (2015) (<i>k</i> = 20)	Edwards- Stewart et al. (2022) (<i>k</i> = 26)
Substance use disorder	NS	-	-	NS (substance use excluded vs. not excluded)	-
Personality disorder	NS	Higher dropout	-	-	-
Obsessive-compulsive disorder	NS	-	-	-	-
TBI history	NS	-	-	-	-
Service connection	NS	-	-	-	-
Female therapists	NS	NS	-	-	-
Therapist experience	Higher dropout mixed samples vs. experienced only samples	Higher dropout among trainee vs. experienced and mixed	NS (trainee, experienced/licensed, and mixed)	-	-
Year of publication	NS	NS	NS	-	-
Theoretical orientation	NS	NS	-	-	-
Manualized	NS	Higher dropout in non- manualized vs. manualized	-	-	-
Time-limited	Higher dropout low or no limit vs. high limit	Higher dropout in no time limit vs. time limit	-	-	-
Setting (VA, DoD, civilian)	Higher dropout VA vs. civilian settings; DoD NS.	-	-	-	-
Treatment format	NS (individual, group, and combined individual+group)	NS (individual, group, and combined individual+group)	-	Higher dropout in group vs. individual	-
Level of care	NS (outpatient, intensive outpatient, residential, inpatient)	Higher dropout among university-based clinics vs. others	Lower dropout in inpatient vs. outpatient and other settings	-	-
Modality	NS (in person vs. telehealth)	-	NS	NS	-

Variable	Civilian Populations			Military Populations	
	Present study (<i>k</i> = 338)	Swift & Greenberg (2012) (<i>k</i> = 669)	Fernandez et al. (2015) (<i>k</i> = 115)	Goetter et al. (2015) (<i>k</i> = 20)	Edwards-Stewart et al. (2022) (<i>k</i> = 26)
Study type	NS (effectiveness vs. efficacy)	Higher dropout among effectiveness vs. efficacy	NS (RCT vs. non-RCT)	NS (effectiveness vs. efficacy)	-
Dropout definition	Higher dropout therapist report vs. failure to complete; higher dropout when definition was specified using any method vs. when it was not specified	Therapist report higher dropout vs. other definitions	-	-	-
Search strategy	NS	Higher dropout among keyword vs. other search strategies	-	-	-
Country	NS (United States vs. other)	-	-	-	-

Note. DoD = Department of Defense; NS = findings were not statistically significant; OEF = Operation Enduring Freedom; OIF = Operation Iraqi Freedom; OND = Operation New Dawn; RCT = randomized controlled trial; SM = Service Member; VA = Department of Veterans Affairs.