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Treatment Refusal and Premature Termination in Psychotherapy, Pharmacotherapy, and Their Combination: A Meta-Analysis of Head-to-Head Comparisons

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The purpose of this meta-analysis was to examine rates of treatment refusal and premature termination for pharmacotherapy alone, psychotherapy alone, pharmacotherapy plus psychotherapy, and psychotherapy plus pill placebo treatments. A systematic review of the literature resulted in 186 comparative trials that included a report of treatment refusal and/or premature termination for at least 2 of the 4 treatment conditions. The data from these studies were pooled using a random-effects analysis. Odds Ratio effect sizes were then calculated to compare the rates between treatment conditions, once across all studies and then again for specific client disorder categories. An average treatment refusal rate of 8.2% was found across studies. Clients who were assigned to pharmacotherapy were 1.76 times more likely to refuse treatment compared with clients who were assigned psychotherapy. Differences in refusal rates for pharmacotherapy and psychotherapy were particularly evident for depressive disorders, panic disorder, and social anxiety disorder. On average, 21.9% of clients prematurely terminated their treatment. Across studies, clients who were assigned to pharmacotherapy were 1.20 times more likely to drop out compared with clients who were assigned to psychotherapy. Pharmacotherapy clients with anorexia/bulimia and depressive disorders dropped out at higher rates compared with psychotherapy clients with these disorders. Treatment refusal and dropout are significant problems in both psychotherapy and pharmacotherapy and providers of these treatments should seek to employ strategies to reduce their occurrence.

Keywords: pharmacotherapy, premature termination, psychotherapy, treatment refusal, meta-analysis

Given the prevalence and global disease burden associated with mental health disorders (Walker, McGee, & Druss, 2015; Whiteford et al., 2013), research seeking to identify the most effective treatments plays a vital role in the field. With this goal in mind, meta-analyses have sought to compare the efficacy of psychotherapy and pharmacotherapy for various psychological problems (see Huhn et al., 2014). Although many previous reviews have compared these two types of interventions in terms of client outcomes, reviews have yet to adequately compare rates of treatment refusal and premature termination between psychotherapy, pharmacotherapy, and combination treatment conditions.

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Treatment Refusal in Psychotherapy and Pharmacotherapy

Treatment refusal in psychotherapy or pharmacotherapy occurs when a client is offered an intervention, but then fails to begin it (Swift & Greenberg, 2015). In research settings, such as randomized controlled trials, treatment refusal happens when clients initially agree to participate in a study, but then discontinue immediately after finding out which intervention they were assigned to. In naturalistic clinical settings, it is seen when clients call a psychiatrist, psychologist, or other mental health professional to schedule an initial appointment, but then fail to show up for that session. In naturalistic settings, it can also be seen when clients fail to follow through with a referral to meet with a mental health provider. Treatment refusal can be problematic because research has indicated that failure to receive professional psychological help when there is a need results in significant problems for individuals and societies (Walker et al., 2015; Whiteford et al., 2013).

Several variables may influence an individual's decision to refuse psychotherapy or pharmacotherapy. Client preferences are thought to play one of the largest roles (Sidani, Fox, & Epstein, 2015; Swift, Callahan, & Vollmer, 2011)—when individuals are assigned or recommended a treatment that does not match their

preferences, they will be less likely to begin that treatment. Research has indicated that, in general, individuals tend to prefer psychotherapy over pharmacotherapy (McHugh, Whitton, Peckham, Welge, & Otto, 2013) and so one might hypothesize higher refusal rates for pharmacotherapy. The stigma associated with seeking mental health help is another variable that has been linked to psychological treatment use (Corrigan, Druss, & Perlick, 2014; Henderson, Evans-Lacko, & Thornicroft, 2013), and different levels of stigma may be associated with psychotherapy versus pharmacotherapy. Other barriers that might lead to refusal of psychotherapy or pharmacotherapy include availability, concerns of cost, inconvenience, and prognostic beliefs (Gulliver, Griffiths, & Christensen, 2010).

The existing research does suggest differential refusal rates for psychotherapy versus pharmacotherapy. For example, several individual studies have found much higher refusal rates for pharmacotherapy (Blanco et al., 2010; Dekker et al., 2008; Payne et al., 2016); however, some individual studies have found higher refusal rates for psychotherapy (Hollon et al., 1992; Konarski et al., 2009). In order to better understanding these conflicting results, a systematic review and meta-analysis is needed to examine whether refusal is higher for one treatment over the other in general, as well as for specific client disorders.

Premature Termination in Psychotherapy and Pharmacotherapy

Premature termination in psychotherapy or pharmacotherapy occurs whenever a client begins an intervention, but then unilaterally terminates it against provider recommendations and prior to recovering from the problems that led him or her to seek treatment in the first place (Swift & Greenberg, 2012). Premature termination is seen as problematic given that clients who fail to complete a treatment are less likely to experience improvement in their psychological functioning (Björk, Björk, Clinton, Sohlberg, & Norring, 2009; Cahill et al., 2003; Lampropoulos, 2010; Swift, Callahan, & Levine, 2009). In addition, premature discontinuation of some medications can have serious health risks and can even be life-threatening. Besides the immediate effects experienced by the clients, if the psychological problems persist, the deleterious impacts can also extend to family members, friends, coworkers, and communities. Furthermore, when premature termination occurs, providers can also experience negative results, often feeling a sense of frustration and demoralization in their work (Ogrodniczuk, Joyce, & Piper, 2005; Piselli, Halgin, & MacEwan, 2011).

Premature termination has been hypothesized to occur whenever the perceived or anticipated costs of continuing the treatment outweigh any perceived or anticipated benefits (Swift, Greenberg, Whipple, & Kominiak, 2012). For both psychotherapy and pharmacotherapy, the benefit of treatment can be found in the prospect of getting better; however, clients may perceive additional benefits to psychotherapy over medication in that psychotherapy typically includes more frequent contact with a caring individual who listens and offers support in a nonjudgmental manner. Although benefits with psychotherapy and pharmacotherapy may be easily perceived, a number of costs are also associated with both treatments. Financial expenses and perceived stigma are perhaps two of the biggest costs associated with both treatments. Psychotherapy also has a unique cost in that the work of openly discussing problems, pains, and difficult experiences on a regular basis can be difficult for many clients. For pharmacotherapy, one unique cost can be the negative drug side effects associated with some medications. Given the differing costs and benefits associated with psychotherapy and pharmacotherapy, it is possible that rates of premature termination differ between these two types of treatments.

A few reviews have examined rates of premature termination for psychotherapy and pharmacotherapy. Although historical reviews of psychotherapy have suggested that about 50% of clients prematurely terminate from this type of treatment (Baekeland & Lundwall, 1975; Wierzbicki & Pekarik, 1993), recent large scale meta-analyses have indicated that only about 20% of clients actually drop out of psychotherapy prematurely (Fernandez, Salem, Swift, & Ramtahal, 2015; Swift & Greenberg, 2012). Reviews of pharmacotherapy have suggested that as many 30% to 50% of clients prematurely discontinue their psychotropic medications (Cramer & Rosenheck, 1998; Nantz, Liu-Seifert, & Skljarevski, 2009; Sansone & Sansone, 2012). Synthesizing results from studies that have directly compared the treatment efficacy of psychotherapy, pharmacotherapy, and their combination, a few meta-analyses have also reported comparative dropout rates for these conditions. For treatments of depression, the existing meta-analyses have produced mixed results—one meta-analysis with 10 included studies (De Maat, Dekker, Schoevers, & De Jonghe, 2006) and one meta-analysis with 33 included studies (Cuijpers, van Straten, Andersson, & van Oppen, 2008) found lower dropout rates for psychotherapy compared with pharmacotherapy; however, a more recent meta-analysis with 15 studies failed to find a difference in dropout rates between the two treatments (Spielmans, Berman, & Usitalo, 2011). For anorexia, one meta-analysis (DeJong, Broadbent, & Schmidt, 2012) found that the dropout rate for pharmacotherapy was higher than either psychotherapy or their combination; however, this result was based on only one head-to-head comparative study. In a meta-analysis examining the effectiveness of psychotherapy and pharmacotherapy for generalized anxiety disorder (Gonçalves & Byrne, 2012), no differences in dropout rates in treatment conditions were found; however, this finding was also only based on one direct comparison study of the two interventions.

The existing reviews do provide some initial data on dropout rates for psychotherapy versus pharmacotherapy; however, a number of limitations with the existing meta-analyses necessitate further research in this area. First, the literature is limited in that conflicting results for some disorders, such as depression, have been found. Second, several of the meta-analyses that do make conclusions about differential dropout rates are based on results from only one or two studies. Third, many of the meta-analyses were designed to examine the efficacy of the interventions, and dropout results are reported as a side finding to the main outcomes. This can be problematic because some of these reviews only briefly mention the dropout comparisons rather than reporting full detailed results. Additionally, without using search strategies tailored to a focus on premature termination, some studies that report dropout rates may have been missed. Fourth, although dropout differences have been reported for some disorders, several others have not been examined. Last, based on our review of the literature, no meta-analyses have separately compared rates of treatment refusal and premature termination from psychotherapy, pharmaco-

therapy, their combination, and therapy plus pill placebo conditions.

Aims of the Current Review

The aim of the current review was to compare rates of treatment refusal and premature termination between psychotherapy, pharmacotherapy, their combination, and therapy plus pill placebo treatments for a broad number of psychological disorders. Although previous reviews have tested for efficacy differences between these interventions, reviews have yet to fully test for differences in treatment refusal and premature termination. Comparing rates of treatment refusal and dropout is important because even if one treatment shows to be more effective than another, that treatment can be of little benefit if clients are unwilling to engage in it.

In this review, we sought to compare the rates in studies that were designed to include a direct comparison between psychotherapy and pharmacotherapy treatment conditions. Although naturalistic studies of psychotherapy and pharmacotherapy are beneficial to the field, we chose to only include direct comparisons in order to maintain a high level of internal validity—when clients are randomized to treatment conditions, refusal and dropout differences are more likely due to aspects of the treatment; however, in naturalistic studies, refusal and dropout differences could be due to other factors about the clients who decide to seek out one treatment over another.

This review was designed to include comparisons between pharmacotherapy alone, psychotherapy alone, pharmacotherapy plus psychotherapy, and psychotherapy plus pill placebo conditions. It would also be of interest to examine whether rates of refusal and premature termination in pill placebo alone, placebo therapy alone, and pharmacotherapy plus placebo therapy conditions also differed in their treatment refusal and dropout rates. Including both pill placebo and therapy placebo conditions would help to identify the extent to which premature termination is due to the specific components of the interventions; however, including therapy placebo conditions in the current meta-analysis was not possible because none of the identified studies included a therapy condition that was not hypothesized to include active treatment components. We chose not to include pill placebo alone conditions in our meta-analysis because refusal rates would not be meaningful for such conditions (clients assigned to pill placebo would believe that they were accepting or refusing medication), dropout rates were not consistently reported for pill placebo alone participants across studies that included this condition, and the focus of this meta-analysis is to compare premature termination rates between active treatments, rather than to identify whether premature termination is a significant problem within one specific intervention—previous reviews have already focused on the problem of premature discontinuation in pharmacotherapy or psychotherapy alone (Cramer & Rosenheck, 1998; Fernandez et al., 2015; Nantz et al., 2009; Sansone & Sansone, 2012; Swift & Greenberg, 2012).

In conducting this meta-analysis, we hypothesized that psychotherapy alone would have lower treatment refusal and premature termination rates when compared with pharmacotherapy alone. This hypothesis was based on the existing literature indicating that individuals tend to prefer psychotherapy over pharmacotherapy (McHugh et al., 2013) and the preliminary results from existing meta-analyses that suggest that psychotherapy may show lower premature termination rates when compared with pharmacotherapy (Cuijpers et al., 2008; DeJong, Broadbent, & Schmidt, 2012; De Maat et al., 2006). Given the limited literature, we did not make any hypotheses regarding differences in refusal and dropout rates for psychotherapy plus pharmacotherapy and psychotherapy plus pill placebo conditions. Similarly, no hypotheses were made concerning differences between the treatment conditions when the studies were separated by client disorder.

Method

Search and Coding Strategy

For this meta-analysis, we were interested in testing for differences in the refusal and dropout rates from studies that were designed as head-to-head comparisons of psychotherapy, pharmacotherapy, their combination (COMBO), or psychotherapy plus pill placebo for a psychological problem. In order to be included, studies had to assign (randomly or through some other means) participants to their treatment condition. Naturalistic studies or studies that were designed to compare two or more types of psychotherapies against each other, but had also reported client-driven medication use, were not included in this meta-analysis. Additional criteria were that the studies needed to be published in English, include adult (18+) clients, the treatments had to be for a diagnosable psychological disorder with the exclusion of substance use disorders, and the treatments could not be exclusively self-help, technology-based, or couples/family based interventions. Studies had to be published sometime between June of 1990 (cut-off date of a previous meta-analysis on premature termination in psychotherapy) and June of 2016 (when the literature search for this meta-analysis commenced). When two or more articles reported results using the same dataset, only the original article or the one with the most complete report of treatment refusal and dropout was used.

Several search strategies were utilized to identify articles for this meta-analysis (see Figure 1 for flow of studies). The first search strategy was to locate relevant studies that were previously included in a meta-analysis on premature termination from psychotherapy (Swift & Greenberg, 2012). All 669 articles from Swift and Greenberg's (2012) meta-analysis were reviewed at the full text level to identify ones that included direct comparisons between psychotherapy, pharmacotherapy, COMBO, or psychotherapy plus pill placebo treatment conditions. This resulted in 80 unique studies.

Second, a search of other existing meta-analyses was conducted. Replicating one of Swift and Greenberg's (2012) search strategies, a PsycINFO search was conducted using the keywords "meta-analysis" AND "psychotherapy" or "therapy" or "psychological treatment" or "psychological intervention" or "medication" or "pharmacotherapy." This resulted in 3,803 citations. These citations were reviewed at the title and abstract level to see if they reported results from a meta-analysis that may have included at least one study that met inclusion criteria. Seventy-two meta-analyses were identified. We then checked this list of 72 meta-analyses against a list of 61 meta-analyses from a review of the efficacy of pharmacotherapy and psychotherapy (Huhn et al., 2014)—no additional meta-analyses were identified. The titles and

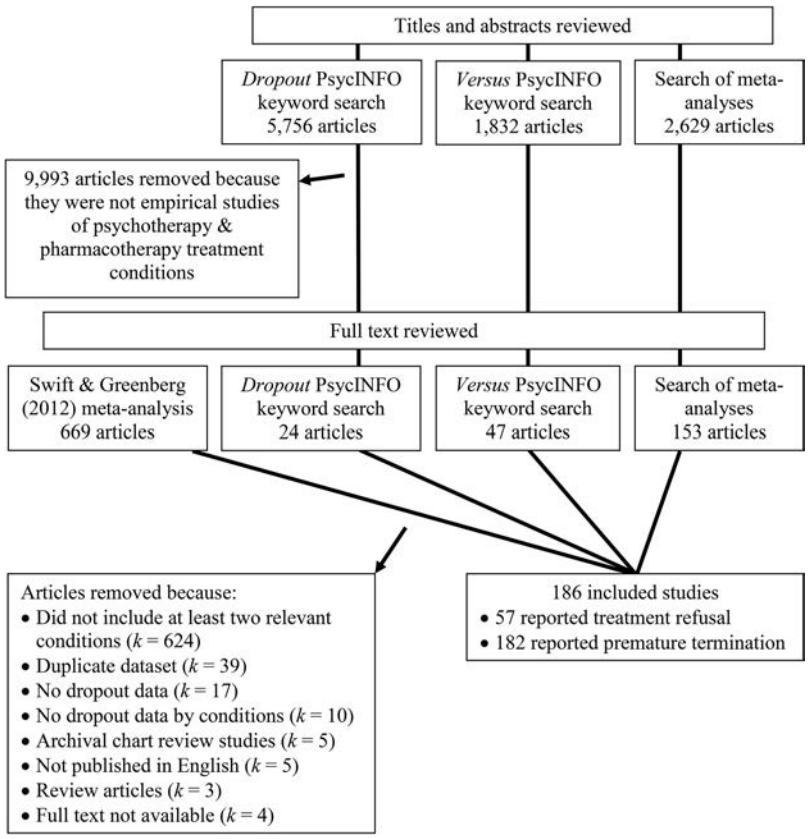

Figure 1. Flowchart of search results.

abstracts for all of the articles ($k = 2{,}629$) that were included in one of the 72 meta-analyses were then reviewed for inclusion. Given that several of the meta-analyses used a portion of studies from the Evidence-based Psychotherapies website (www.evidencebasedpsychotherapies.org), we also reviewed all of the studies ($k = 352$) from that database. In total, 153 unique articles were identified through our second search strategy and were reviewed at the full-text level.

Third, replicating another one of Swift and Greenberg's (2012) as well as Wierzbicki and Pekarik's (1993) search strategies, a PsycINFO search was conducted using the keywords "attrition" or "client variables" or "continuance" or "dropout" or "psychotherapy dropout" or "termination" or "therapist variables." This resulted in 5,756 citations that were reviewed at the title and abstract level. Only 24 unique studies that had not already been found through the meta-analysis search were identified using this third search strategy.

Fourth, a new PsycINFO search was conducted using the keywords "psychotherapy" or "therapy" or "psychological treatment" or "psychological intervention" AND "versus" AND "pharmacotherapy" or "medication." This resulted in 1,832 citations that were also reviewed at the title and abstract level. From these citations, 47 additional unique studies were identified for possible inclusion.

Based on the four search strategies, 893 potentially relevant articles were reviewed at the full text level to determine if they met inclusion criteria. The full text review and coding of these studies was conducted by two coders in a stepwise manner. Initially, a sample of 10 studies were reviewed by both coders, nonindependently. That is, the coders met and discussed closely their codings for this small sample of studies. This step was included to identify early any discrepancies in the coding strategies that were being used by the two individuals. Second, 25% of the remaining studies were reviewed by the two coders independently. At the end of this step, codings were compared and a high level of agreement was observed (98.5% agreement on study inclusion, 99.13% agreement on coding of data and study characteristics). Discrepancies were again discussed and a consensus was achieved. Given the high level of agreement that was observed in the second step, the remaining studies were reviewed by a single coder only. Of the 893 potentially relevant articles that were reviewed at the full text level, 186 studies were found that met all inclusion criteria. Thirty-nine studies were not included because they reported results from a dataset that was reported in another included study, 624 did not include at least two of the relevant conditions (psychotherapy alone, pharmacotherapy alone, COMBO, or psychotherapy plus pill placebo), 17 did not report any dropout data, 10 did not report dropout data separately for the conditions, five were naturalistic reviews of archival data, five were not published in English, three were review articles, and for four the full text articles could not be found (authors were contacted without response). The 186 included studies were coded for treatment conditions, client disorder, type of medication, type of therapy, type of allocation to conditions (randomized or not randomized), and rates of refusal of the assigned treatment condition (failing to start the treatment once it

was assigned) and premature termination (attending at least one session, but failing to complete the treatment as defined by the individual studies' authors).

Data Analysis Strategy

All data analyses were conducted using Comprehensive Meta-Analysis (Version 2), developed by Borenstein, Hedges, Higgins, and Rothstein (2005). Weighted rates of treatment refusal and premature termination were calculated using a random-effects model. A random-effects model, compared with a fixed-effects model, is typically preferred when studies are thought to differ in their methods and results. Given the variance in client disorders and the types of medication and psychotherapy that were used in the included studies, we expected a high degree of heterogeneity. The exact degree of heterogeneity in the rates was calculated using Q and I^2 statistics, which represent variance between studies.

Calculation of the weighted rate for refusal of treatment across all studies was followed by calculations of the Odds Ratios (*OR*) for each treatment condition comparison: psychotherapy versus pharmacotherapy, psychotherapy versus COMBO, pharmacotherapy versus COMBO. This was done once across all studies that reported rates for treatment refusal, and then again separately for each disorder category where data was available. In these analyses, refusal rates for COMBO and psychotherapy plus pill placebo were combined given that participants who were assigned to the psychotherapy plus pill placebo condition would have believed they were going to receive the COMBO treatment due to the blinding of conditions.

Next, calculation of the weighted premature termination rate was followed by calculations of the *OR* for each treatment condition comparison: psychotherapy versus pharmacotherapy, psychotherapy versus COMBO, psychotherapy versus psychotherapy plus pill placebo, pharmacotherapy versus COMBO, pharmacotherapy versus psychotherapy plus pill placebo, and COMBO versus psychotherapy plus pill placebo. Again, this was done once across all studies, and then once for each disorder category.

Results

Data from 186 studies were included in this meta-analysis. The 186 studies were trials of treatments for agoraphobia ($k = 3$), anorexia or bulimia ($k = 4$), binge eating disorder ($k = 6$), bipolar disorder ($k = 2$), borderline personality disorder (BPD; $k = 2$), depressive disorders ($k = 96$), generalized anxiety disorder (GAD; $k = 4$), mixed anxiety disorders ($k = 5$), obsessive–compulsive disorder (OCD; $k = 11$), panic disorder ($k = 23$), posttraumatic stress disorder (PTSD; $k = 7$), schizophrenia ($k = 7$), social anxiety disorder ($k = 14$), and trichotillomania ($k = 2$). The studies included comparisons between psychotherapy and pharmacotherapy alone ($k = 61$); psychotherapy and COMBO ($k = 6$); psychotherapy and psychotherapy plus pill placebo ($k = 2$); pharmacotherapy and COMBO ($k = 52$); COMBO and psychotherapy plus pill placebo ($k = 23$); psychotherapy, pharmacotherapy, and COMBO ($k = 20$); psychotherapy, COMBO, and psychotherapy plus pill placebo ($k = 1$); pharmacotherapy, COMBO, and psychotherapy plus pill placebo ($k = 15$); and psychotherapy, pharmacotherapy, COMBO, and psychotherapy plus pill placebo ($k = 6$). The majority of the psychotherapy conditions were traditional cognitive–behavioral approaches ($k = 116$). Other therapy conditions included Cognitive Behavioral Analysis System of Psychotherapy ($k = 3$), dialectical behavior therapy ($k = 3$), Eye Movement Desensitization and Reprocessing ($k = 2$), integrative ($k = 5$), interpersonal psychotherapy ($k = 18$), Mindfulness-Based Cognitive Therapy ($k = 5$), psychodynamic psychotherapy ($k = 11$), problem-solving therapy ($k = 4$), multiple defined psychotherapies within a single study ($k = 12$), and other ($k = 7$). A number of different classes of medications were used as treatments, including selective serotonin reuptake inhibitors ($k = 75$), tricyclic antidepressants ($k = 27$), various/other antidepressants depending on the client ($k = 34$), monoamine oxidase inhibitors ($k = 8$), benzodiazepines ($k = 7$), serotonin-norepinephrine reuptake inhibitors ($k = 6$), various antipsychotics ($k = 6$), and various other medications suited to the client ($k = 24$). All but 17 of the studies used randomization to assign participants to the treatment conditions.

Refusal of Treatment After Assignment

Fifty-seven studies with 120 conditions reported data on participants' refusal of treatment after randomization. From these 57 studies, a total of 6,693 participants were assigned to a treatment condition—psychotherapy alone, pharmacotherapy alone, and COMBO (which included COMBO and psychotherapy plus pill placebo participants for this set of analyses). Across all conditions, a significant number of clients failed to start their treatment after they were told what it was, *weighted rate* = 8.2%, 95% CI [7.0%, 9.6%], $z = 28.74$, $p < .001$. Rates of treatment refusal ranged from 0% to 58.18%, with a significant amount of heterogeneity indicated, $Q(119) = 464.18$, $p < .001$, $I^2 = 74.36\%$, 95% CI [69.40%, 78.52%].

In studies that included a direct comparison between psychotherapy alone and pharmacotherapy alone conditions ($k = 36$), participants were 1.76 times more likely to fail to initiate their treatment if they were assigned to pharmacotherapy alone compared with if they were assigned to psychotherapy alone, 95% CI [1.27, 2.45], $z = 3.39$, $p = .001$. Calculation of the fail-safe *N* indicated that 138 missing studies with no differences in refusal rates between the two conditions would be needed to move this *OR* effect size to a nonsignificant value. No significant differences in refusal rates were found between psychotherapy alone to COMBO treatment conditions ($k = 12$), $OR = 0.90$, 95% CI [0.48, 1.68], $z = 0.34$, $p = .74$; or between pharmacotherapy alone and COMBO treatment conditions ($k = 25$), $OR = 1.26$, 95% CI [0.92, 1.72], $z = 1.45$, $p = .15$.

Results of the comparisons of refusal rates for these three treatment conditions separated by client disorder groups can be found in Table 1. In summary, clients with depression were 2.16 times more likely, clients with panic disorder were 2.79 times more likely, and clients with social anxiety disorder were 1.97 times more likely to refuse their treatment if they were assigned to pharmacotherapy alone compared with psychotherapy alone. No significant differences in refusal rates between pharmacotherapy alone and psychotherapy alone were seen for anorexia/bulimia, GAD, mixed anxiety disorders, OCD, or PTSD. No significant differences in refusal rates were seen for any of the disorders between pharmacotherapy alone and COMBO treatments or between psychotherapy alone and COMBO treatments.

Table 1
Refusal of Treatment Results Separated by Client Disorder

Disorder	Comparison (condition with the higher refusal rate bolded)	*k*	*OR* [95% CI]	*z* value
Anorexia/bulimia	**Pharmacotherapy** vs. psychotherapy	1	1.03 [.33, 3.25]	.05
	Pharmacotherapy vs. **COMBO**	1	.94 [.30, 2.98]	.10
	Psychotherapy vs. **COMBO**	1	.91 [.29, 2.89]	.15
Depression	**Pharmacotherapy** vs. psychotherapy	23	2.16 [1.58, 2.95]	4.82***
	Pharmacotherapy vs. COMBO	14	1.47 [.89, 2.42]	1.52
	Psychotherapy vs. **COMBO**	5	.37 [.12, 1.12]	1.77
GAD	Pharmacotherapy vs. **psychotherapy**	1	.48 [.04, 5.66]	.59
	Pharmacotherapy vs. **COMBO**	1	.59 [.06, 6.03]	.44
	Psychotherapy vs. COMBO	1	1.24 [.19, 8.00]	.22
Mixed anxiety OCD	**Pharmacotherapy** vs. psychotherapy	1	2.08 [.43, 10.09]	.91
	Pharmacotherapy vs. psychotherapy	2	1.35 [.53, 3.43]	.62
	Pharmacotherapy vs. COMBO	1	4.74 [.97, 23.02]	1.93
	Psychotherapy vs. COMBO	1	4.28 [.84, 21.83]	1.75
Panic	**Pharmacotherapy** vs. psychotherapy	4	2.79 [1.28, 6.11]	2.56**
	Pharmacotherapy vs. COMBO	1	1.70 [.39, 7.52]	.70
	Psychotherapy vs. COMBO	2	1.15 [.36, 3.66]	.24
PTSD	Pharmacotherapy vs. **psychotherapy**	1	.67 [.25, 1.79]	.79
	Pharmacotherapy vs. **COMBO**	1	.79 [.36, 1.75]	.59
Schizophrenia	Pharmacotherapy vs. **COMBO**	2	.63 [.14, 2.84]	.60
Social anxiety disorder	**Pharmacotherapy** vs. psychotherapy	3	1.97 [1.00, 3.87]	1.96*
	Pharmacotherapy vs. COMBO	4	1.32 [.69, 2.50]	.84
	Psychotherapy vs. **COMBO**	2	.79 [.32, 1.96]	.50

* $p < .05$. ** $p < .01$. *** $p < .001$.

Premature Termination From Treatment

All but four of the included studies reported rates of premature termination. These 182 studies included 410 treatment conditions and 17,891 clients who started their assigned intervention. Across studies and intervention types, the weighted average premature termination rate was 21.9%, 95% CI [20.6%, 23.3%], $z = 32.36$, $p < .001$. Rates of premature termination ranged from 0% to 68.75%, with a significant amount of heterogeneity indicated, $Q(408) = 1442.53$, $p < .001$, $I^2 = 71.72\%$, 95% CI [68.79%, 74.37%].

In studies that included a direct comparison between psychotherapy alone and pharmacotherapy alone ($k = 85$), clients assigned to pharmacotherapy were 1.20 times more likely to discontinue their treatment prematurely, 95% CI [1.03, 1.41], $z = 2.30$, $p < .05$. Calculation of the fail-safe *N* indicated that 141 missing studies with no differences in dropout rates between the two conditions would be needed to move this *OR* effect size to a nonsignificant value. There were no significant differences in rates of premature termination between psychotherapy and COMBO treatments ($k = 32$), $OR = 0.93$, 95% CI [0.72, 1.21], $z = 0.54$, $p = .59$; between psychotherapy alone and psychotherapy plus pill placebo ($k = 8$), $OR = 1.21$, 95% CI [0.76, 1.92], $z = 0.81$, $p = .42$; between pharmacotherapy and COMBO conditions ($k = 91$), $OR = 1.10$, 95% CI [0.93, 1.30], $z = 1.09$, $p = .28$; between pharmacotherapy and psychotherapy plus pill placebo ($k = 20$), $OR = 1.29$, 95% CI [0.91, 1.83], $z = 1.44$, $p = .15$; or between COMBO and psychotherapy plus pill placebo conditions ($k = 42$), $OR = 0.96$, 95% CI [0.77, 1.19], $z = 0.37$, $p = .71$.

Comparison of premature termination rates between the treatment conditions when separated by client disorders can be found in Table 2. In summary, clients with anorexia/bulimia were 2.46 times more likely to prematurely terminate and clients with depression were 1.26 times more likely to prematurely terminate if they were assigned to pharmacotherapy compared with psychotherapy. Clients with OCD were about half as likely to drop out of treatment ($OR = 0.47$) if they were assigned to psychotherapy compared with a COMBO intervention. Last, clients with PTSD were 10.8 times more likely to prematurely terminate from pharmacotherapy compared with psychotherapy plus pill placebo condition; however, this finding was based on data from a single study only. No other significant differences in premature termination rates between the conditions were observed for any of the disorders.

Discussion

The goal of the current meta-analysis was to test whether differences exist in rates of treatment refusal and premature termination between psychotherapy alone, pharmacotherapy alone, psychotherapy plus pharmacotherapy, and psychotherapy plus pill placebo conditions. Across all studies an average treatment refusal rate of 8.2% was found. Although this number might seem small, it is important to remember that these were clients who already indicated that they were willing to be assigned to any of the treatment conditions. In settings where clients might hold stronger preferences regarding what treatment they would like to receive, one might expect an even higher rate of treatment refusal if clients are assigned to a nonpreferred intervention (Swift et al., 2011; Swift, Callahan, Ivanovic, & Kominiak, 2013).

In further exploring the refusal rates, we found that across studies participants were almost two times less likely to begin their treatment if they were assigned to pharmacotherapy alone compared with psychotherapy alone. This finding seems to match findings from the literature on client preferences. For example, in

Table 2
Premature Termination Results Separated by Client Disorder

Disorder	Comparison (condition with the higher dropout rate bolded)	*k*	*OR* [95% CI]	*z* value
Agoraphobia	Pharmacotherapy vs. **psychotherapy**	1	.47 [.16, 1.39]	1.37
	Psychotherapy vs. therapy + placebo	1	2.27 [.77, 6.69]	1.48
	Pharmacotherapy vs. **COMBO**	1	.87 [.30, 2.49]	.27
	Pharmacotherapy vs. therapy + placebo	1	1.06 [.35, 3.23]	.11
	COMBO vs. **therapy + placebo**	1	.94 [.40, 2.21]	.13
Anorexia/bulimia	**Pharmacotherapy** vs. psychotherapy	2	2.46 [1.00, 6.05]	1.97*
	Psychotherapy vs. **COMBO**	2	.76 [.32, 1.84]	.60
	Pharmacotherapy vs. COMBO	3	1.67 [.88, 3.15]	1.58
	Pharmacotherapy vs. therapy + placebo	1	1.60 [.61, 4.21]	.95
	COMBO vs. **therapy + placebo**	2	.97 [.42, 2.24]	.08
Binge-eating disorder	**Pharmacotherapy** vs. psychotherapy	1	1.26 [.33, 4.84]	.34
	Psychotherapy vs. **COMBO**	2	.59 [.26, 1.33]	1.28
	Pharmacotherapy vs. **COMBO**	1	.95 [.26, 3.45]	.07
	Pharmacotherapy vs. therapy + placebo	1	1.05 [.29, 3.77]	.07
	COMBO vs. **therapy + placebo**	3	.61 [.35, 1.07]	1.73
Bipolar BPD	Pharmacotherapy vs. **COMBO**	2	.99 [.36, 2.69]	.02
	Pharmacotherapy vs. COMBO	1	1.20 [.32, 4.52]	.27
	COMBO vs. therapy + placebo	1	1.83 [.25, 13.47]	.60
Depression	**Pharmacotherapy** vs. psychotherapy	44	1.26 [1.00, 1.58]	1.96*
	Psychotherapy vs. **COMBO**	15	.98 [.79, 1.21]	.17
	Psychotherapy vs. therapy + placebo	2	1.28 [.59, 2.81]	.62
	Pharmacotherapy vs. COMBO	48	1.09 [.86, 1.37]	.70
	Pharmacotherapy vs. **therapy + placebo**	6	.85 [.52, 1.41]	.62
	COMBO vs. **therapy + placebo**	14	.79 [.56, 1.12]	1.34
GAD	**Pharmacotherapy** vs. psychotherapy	2	3.11 [.52, 18.73]	1.24
	Psychotherapy vs. COMBO	1	3.15 [.12, 81.74]	.69
	Psychotherapy vs. **therapy + placebo**	1	.25 [.02, 2.65]	1.15
	Pharmacotherapy vs. COMBO	2	2.38 [.18, 32.05]	.66
	Pharmacotherapy vs. therapy + placebo	1	1.47 [.30, 7.22]	.48
	COMBO vs. therapy + placebo	2	2.41 [.66, 8.73]	1.34
Mixed anxiety	**Pharmacotherapy** vs. psychotherapy	3	1.38 [.61, 3.12]	.78
	Psychotherapy vs. COMBO	1	5.95 [.26, 138.25]	1.11
	Pharmacotherapy vs. COMBO	2	1.05 [.30, 3.75]	.08
Mixed disorders OCD	**Pharmacotherapy** vs. psychotherapy	1	1.20 [.46, 3.13]	.37
	Pharmacotherapy vs. psychotherapy	5	1.30 [.82, 2.09]	1.11
	Psychotherapy vs. **COMBO**	3	.47 [.24, .94]	2.14*
	Pharmacotherapy vs. **COMBO**	5	.51 [.16, 1.62]	1.15
	Pharmacotherapy vs. therapy + placebo	1	1.23 [.35, 4.31]	.32
	COMBO vs. **therapy + placebo**	3	.52 [.19, 1.41]	1.28
Panic disorder	Pharmacotherapy vs. **psychotherapy**	13	.91 [.58, 1.43]	.41
	Psychotherapy vs. COMBO	6	1.28 [.83, 1.96]	1.11
	Psychotherapy vs. therapy + placebo	3	1.27 [.70, 2.31]	.78
	Pharmacotherapy vs. COMBO	11	1.02 [.73, 1.44]	.13
	Pharmacotherapy vs. therapy + placebo	4	1.49 [.85, 2.61]	1.40
	COMBO vs. therapy + placebo	8	1.28 [.82, 1.99]	1.08
PTSD	**Pharmacotherapy** vs. psychotherapy	3	1.29 [.64, 2.59]	.72
	Pharmacotherapy vs. **COMBO**	2	.82 [.04, 16.95]	.13
	Pharmacotherapy vs. therapy + placebo	1	10.80 [1.26, 92.67]	2.17*
	COMBO vs. therapy + placebo	3	1.40 [.49, 3.99]	.62
Schizophrenia	**Pharmacotherapy** vs. COMBO	7	1.54 [.82, 2.92]	1.33
Social anxiety disorder	**Pharmacotherapy** vs. psychotherapy	8	1.17 [.74, 1.84]	.65
	Psychotherapy vs. **COMBO**	2	.86 [.35, 2.09]	.34
	Psychotherapy vs. **therapy + placebo**	1	.72 [.28, 1.87]	.68
	Pharmacotherapy vs. COMBO	6	1.29 [.79, 2.12]	1.02
	Pharmacotherapy vs. therapy + placebo	4	1.61 [.72, 3.61]	1.16
	COMBO vs. therapy + placebo	5	1.39 [.75, 2.55]	1.04
Trichotillomania	**Pharmacotherapy** vs. psychotherapy	2	1.98 [.40, 9.81]	.83

* $p < .05$.

a meta-analysis that included 34 studies, 75% of all adult clients were found to prefer psychotherapy over pharmacotherapy for the treatment of their psychological problems (McHugh et al., 2013). In other meta-analyses, client preferences have been found to have an influence on premature termination and treatment outcomes (Swift et al., 2011, 2013). The results of the current meta-analysis suggest that preferences may be playing a role in treatment refusal as well.

The difference in refusal rates between pharmacotherapy and psychotherapy was not consistent across client disorders. Although participants were 1.97 times more likely to refuse pharmacotherapy over psychotherapy for the treatment of social anxiety disorder, 2.16 times more likely to refuse pharmacotherapy over psychotherapy for the treatment of depression, and 2.79 times more likely to refuse pharmacotherapy over psychotherapy for the treatment of panic disorder, there were no differences in refusal rates between these two treatments for anorexia/bulimia, GAD, mixed anxiety disorders, OCD, or PTSD. It may be possible that individuals differ in their views of the tolerability and effectiveness of psychotherapy and pharmacotherapy for certain disorders—psychotherapy may be viewed more positively for depression, social anxiety disorder, and panic disorder, and psychotherapy and pharmacotherapy may be viewed as more equivalent for anorexia/bulimia, GAD, mixed anxiety disorders, OCD, and PTSD. However, McHugh et al. (2013) found that client preferences for psychotherapy over pharmacotherapy are relatively consistent across disorder types. Perhaps clients with certain disorders are just more agreeable to engage in treatments that do not match their preferences. Regardless of the reason, it is important to recognize that clients with social anxiety disorder, depression, and panic disorder are going to be more likely to begin their treatment if they are given the option to receive psychotherapy.

Across all studies, 21.9% of the client participants dropped out of their treatment prematurely. The rate that was observed, which is similar to the premature termination rate from previous reviews of psychotherapy (Fernandez et al., 2015; Swift & Greenberg, 2012), indicates that one in five clients fail to complete either psychotherapy or pharmacotherapy after beginning their treatment. This is concerning given the research that illustrates a number of negative outcomes associated with premature termination. Similar to the refusal rates, clients were significantly more likely to prematurely terminate from pharmacotherapy compared with psychotherapy. Premature termination may be linked to receiving a nonpreferred treatment (McHugh et al., 2013; Swift et al., 2011), but it may also be linked to the different costs and benefits associated with pharmacotherapy and psychotherapy (Swift & Greenberg, 2015). Even though pharmacotherapy may be seen as a more convenient treatment option often requiring fewer and less frequent appointments, it may come with undesirable side effects, provide fewer opportunities to meet regularly with a caring professional, and may be seen as less effective in the long run (Greenberg, 2016). Although fewer clients dropped out of psychotherapy compared with pharmacotherapy overall, differences were particularly seen with anorexia/bulimia and depression. This finding matches the preliminary results of previous reviews for these two disorders (Cuijpers et al., 2008; DeJong et al., 2012; De Maat et al., 2006).

In most cases there were no significant difference in rates of treatment refusal and premature termination between the single treatment (pharmacotherapy alone and psychotherapy alone) and the combined treatment (pharmacotherapy plus psychotherapy and psychotherapy plus pill placebo) conditions. This finding may also be related to client preferences. Although combined treatments do require more effort from clients, when receiving a combined treatment, clients are guaranteed to receive a preferred treatment option. Guarantee of a preferred intervention may provide clients with enough motivation to start and finish a treatment regimen, even if it comes at the cost of having to receive a nonpreferred intervention.

Limitations

Several limitations can be found in this review. First, there may be studies that compared psychotherapy with pharmacotherapy and reported treatment dropout rates that we failed to include in our meta-analysis. Due to language limitations, we were only able to include studies that were published in English. In addition, we only used one database (PsycINFO) for our search and the limitations with using only one search database have been noted (Wu, Aylward, Roberts, & Evans, 2012). Further, we chose to focus this review of published studies, and thus did not employ any gray literature search strategies. Although there may be studies that were missed, one can be relatively confident in the results based on the large number of citations that were reviewed for this meta-analysis (over 10,000), the large number of studies that were included ($k = 186$), the small confidence intervals for the main findings, and the calculations of the fail-safe *N*s for the main findings.

Second, the analyses that were conducted in this meta-analysis were limited by the number of studies that included the necessary data. For example, the treatment refusal analyses were based on 57 of the 186 total studies. The remaining 129 studies either did not report any refusal data or did not report refusal rates separately for the treatment conditions. It is possible that in some of these studies the participants who refused treatment were counted as premature terminators. We paid careful attention to this possibility when we coded the data and strove to only count as premature terminators or treatment completers those individuals who actually started the intervention. Still, given the lack of detail reported in some studies, the premature termination rate may also include some treatment refusers. It is essential that future primary studies report both events separately. Related, several studies were excluded either because they did not report any dropout data at all or because they did not report rates separately for the different treatment conditions. We would encourage all future primary studies to follow the CONSORT guidelines (Schulz, Altman, Moher, & the CONSORT Group, 2010) and report dropout rates separately for every treatment condition.

Third, some of the results are based on only a small number of studies. For example, we found that clients with PTSD were over 10 times more likely to prematurely terminate from pharmacotherapy than from psychotherapy plus pill placebo. However, this results was based only on a single study with 54 participants. Additional studies that report refusal and dropout rates are needed comparing pharmacotherapy, psychotherapy, pharmacotherapy plus psychotherapy, and psychotherapy plus pill placebo conditions. Although a number of these types of comparisons have been made for treatments of depression, additional studies are particularly needed for eating disorders, bipolar disorder, BPD, GAD, OCD, PTSD, and schizophrenia. As additional studies are conducted comparing these treatment conditions, future reviews will be necessary to update the refusal and premature termination results. Similarly, given the small sample sizes, some of the nonsignificant findings may be due to lower levels of power. Thus, we caution against assuming that the nonsignificant differences in

our results implies equality in refusal and dropout rates across the treatment conditions.

Fourth, studies frequently did not report the clients' reasons for treatment refusal or premature termination. Some clients may have failed to initiate their treatment or discontinued it early because of dissatisfaction or lack of progress, whereas other clients may have refused or discontinued because of a move or change in schedules. Given the design of the studies, it is likely that the proportion clients who failed to initiate or dropped out early for various reasons were evenly spread across the conditions.

Last, in an effort to maintain a high level of internal validity, we chose to exclude naturalistic studies from this meta-analysis. Participants in the included studies all agreed to treatment assignment (random or otherwise) prior to beginning the study which may have had an impact on refusal and dropout rates. A previous review of premature termination in psychotherapy did find higher rates of premature termination in studies that used a naturalistic design (Swift & Greenberg, 2012). Thus, one might expect that in real-world clinical settings, clients would be more likely to refuse a treatment or discontinue it early if it does not match their preferred type of intervention.

Conclusions, Implications, and Future Directions

The purpose of this review was to compare rates of treatment refusal and premature termination between pharmacotherapy alone, psychotherapy alone, pharmacotherapy plus psychotherapy, and psychotherapy plus pill placebo treatment conditions. Across studies, we found that a little over 8% of clients refused their assigned treatments and about 20% of clients dropped out of their treatment once they started it. We also found that rates of treatment refusal were about two times greater for pharmacotherapy when compared with psychotherapy, particularly for the treatment of social anxiety disorder, depressive disorders, or panic disorder. Rates of premature termination were also higher for pharmacotherapy compared with psychotherapy, particularly for anorexia/bulimia and depressive disorders. For the most part, refusal and dropout rates did not differ between single and combined treatments.

These findings have a number of important clinical implications. Based on these results, we believe that in addition to considering treatment efficacy, treatment referrers and providers and those who develop treatment guidelines, should consider refusal and dropout rates when making treatment recommendations. After all, a highly effective treatment can only work if clients are willing to engage in it. Thus, the results of this meta-analysis provide additional support that psychotherapy should be considered a first-line treatment for many psychological disorders (Greenberg, 2016; Leichsenring, Steinert, & Hoyer, 2016). Even though psychotherapy was seen to have lower refusal and dropout rates when compared with pharmacotherapy, many clients either refused or did not complete all of the treatment conditions. This finding suggests that one particular treatment may not be right for all clients. Instead, providers should work to incorporate clients' preferences, values, and beliefs into the treatment decision-making process (APA Presidential Task Force on Evidence-Based Practice, 2006; Institute of Medicine, 2001). A shared-decision making model has been described as one method for incorporating client preferences (Park, Goode, Tompkins, & Swift, 2016).

In addition to incorporating client preferences into the treatment decision-making process, several other recommendations can be made to help clients full engage in psychotherapy, pharmacotherapy, or their combination. The dose-effect model suggests that it takes ~15 to 20 sessions of treatment for 50% of clients to recover and that with more time, a greater percentage of clients will show clinically significant improvements (Lambert, 2013; Swift & Callahan, 2008). Research has shown that clients are more likely to complete their treatment if they are given early education about likely treatment duration (Swift & Callahan, 2011). However, the dose effect model is based on averages, and evidence from the good-enough model suggests that individual clients recover at differing speeds (Baldwin, Berkeljon, Atkins, Olsen, & Nielsen, 2009). Thus, in addition to providing general information based on averages, treatment providers can use outcome monitoring as a way to determine the optimal length of treatment for individual clients. The use of outcome monitoring systems has been shown to reduce premature termination in practice (Lambert & Shimokawa, 2011). Providers should also make sure they are aware of situations when premature termination may be more likely, such as with younger clients, with time-unlimited interventions, and in university-based settings (Swift & Greenberg, 2012). In situations when the risk factors are present, providers can more openly discuss the possibility of premature termination with their clients. Other evidence-based strategies for reducing premature termination include providing role induction, providing education about patterns of change, strengthening client hope, enhancing client motivation, and fostering the therapeutic alliance (Swift & Greenberg, 2015).

Finding a significant difference in refusal rates between psychotherapy and pharmacotherapy also has important research implications. Trials of psychotherapy and pharmacotherapy often only focus on treatment outcomes, and relatively few report rates of treatment refusal for the conditions. Indeed only 30% of the studies included in this meta-analysis that reported rates of treatment dropout also reported rates of treatment refusal. Treatment refusal, though, can have an impact on the dropout rates and efficacy results that are found in any given study. For example, a trial of psychotherapy and pharmacotherapy for panic disorder might find equal dropout and recovery rates for the two treatments. However, if the medication treatment had a higher refusal rate (as was found in this review), one might expect that the dropout rate would be higher and the recovery rate lower for the medication treatment if those who refused the intervention were included in the analyses. For this reason, we would suggest a greater reporting of refusal and dropout data and the use of intent-to-treat analyses when comparing treatment effects. Many others have also recommended a more transparent process in conducting research and reporting the findings (Leichsenring, Abbass, et al., 2016).

There are several future research directions for comparing refusal and dropout rates between psychotherapy, pharmacotherapy, and their combination. First, additional studies are needed to examine the role of client preferences for these treatments. Although research has clearly demonstrated a preference for psychotherapy over pharmacotherapy for depression (McHugh et al., 2013), research on preferences for other disorders are needed. Second, this review started with treatment refusal once an intervention had been assigned. However, clients' choices regarding the tolerability of psychotherapy or pharmacotherapy may impact

even earlier decisions. Specifically, a review is needed to identify how many eligible participants refuse randomization to treatment conditions in trials of psychotherapy versus pharmacotherapy. Additionally, little is known about the actual reasons why clients choose to drop out of psychotherapy versus pharmacotherapy. Quantitative studies could seek to test the relationship between client, treatment, and relationship variables and treatment refusal and premature termination. Qualitative studies comparing reasons for termination between treatment conditions would also be useful. Research identifying the reasons why clients choose to refuse or drop out of treatment could lead to additional strategies for improving initiation and completion rates for these interventions.

A list of studies that were included in the meta-analysis can be found at www.psychotherapyresearchlab.com.

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