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EMPIRICAL PAPER

Reconstructing dropout: Building from multiple definitions, therapist effects, and center effects

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Abstract

Objective: The literature regarding dropout from psychotherapy has suffered from issues of diverse operationalization of the construct. Some have called for a more uniform definition to aid in generalization across research; this study aimed to assess the viability of such a definition by examining the rate of occurrence for three distinct definitions simultaneously. In addition, therapist and center level variances are explored to further understand the differences between definitions. **Method:** We compared the prevalence rates and overlap of three distinct operationalizations of dropout (based on last session attendance, therapist judgment, and symptom change) using data gathered from a national practice research network ($N = 2977$). Higher-order therapist and center-level effects were assessed for each definition. **Results:** There was very little overlap among definitions, with less than one percent of clients simultaneously meeting criteria for all three definitions. Additionally, therapist and center effects were found for each definition, especially notable for therapist-rated and last-session attendance definitions of dropout. **Conclusion:** Rather than a singular definition of dropout, these results instead suggest that multiple, specific, and unique definitions more accurately depict clinical reality, and future research might benefit from uncovering predictors of different “classes” of dropouts and examining the different practices of therapists and centers.

Keywords: dropout; premature termination; therapist effects; center effects; multilevel modeling; treatment; psychotherapy

Clinical or methodological significance of this article: The findings from this study argue against a singular definition of treatment dropout. Psychotherapists and researchers need to consider the clinical, theoretical, and empirical implications of the criteria used to determine whether a patient has dropped out of treatment.

Over the course of many decades, the research literature around dropout, or premature termination, in psychotherapy has suffered from a problem of heterogeneity in operationalization. It is ubiquitous across discipline and modality (e.g., medicine, digital app, etc.), and has been defined in many ways in psychotherapy research, with each definition found to differ in calculated rates of dropout (Hatchett & Park, 2003; Pekarik, 1985; Swift & Greenberg, 2012). For example, Swift and Greenberg’s meta-analysis found that the

definition of dropout was a consistent moderator of calculated rates, resulting in a range of dropout rate between roughly 18% (failed to complete a study protocol) and 37% (therapist judgment). This discrepancy could partially explain the heterogeneity of predictors within the dropout literature, with individual studies finding support for predictor variables that remain unrepeated in meta-analyses, such as client gender and client-therapist ethnicity matching (Karlsson, 2005; Swift & Greenberg, 2012; Xiao et al., 2017b).

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This issue appears to reflect the complex nature of dropout as a construct. While a working definition of dropout as a client-initiated cessation of psychotherapeutic treatment before recovery of symptoms (Hatchett & Park, 2003) may sound clinically intuitive, its empirical operationalization raises a number of questions. For example, how does one determine the cutoff for “recovery of symptoms”? Do all therapists categorize dropouts in the same way? How thoroughly does attendance of the last scheduled session accurately reflect the idea of “client-initiated cessation”? Each of these considerations also raises the possibility of conflicting perspectives. For example, a therapist might make a professional judgment that a client has achieved a good enough amount of improvement and remains well-supported outside of therapy, even if the client has not reached clinically significant change on a measure, or if they missed their last scheduled session.

Whereas the potential meaning and impact of dropout are different for the client, therapist, or treatment-center, there is a general consensus that premature termination typically carries undesirable consequences (Barrett et al., 2008; Hatchett, 2004; Ogrodniczuk et al., 2005; Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993). These findings have also clearly informed the call for a more standardized operationalization of this construct (Hatchett & Park, 2003; Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993). Any individual definition carries cost and benefit. For example, using only “therapist defined” dropouts might fail to consider symptom change of the client or the costs of dropout imposed on the treatment center or provider. At least two meta-analyses of the dropout literature have commented on the strengths and inherent deficiencies of using any single definition, and strongly recommended future studies to carefully consider multiple operationalizations in combination for a consistent dropout definition (Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993). However, it is unclear how combining these components would impact the interpretability of findings.

The idea of a universal “gold standard” implies that there is a “best way” to measure dropout that adequately bridges or encompasses previously used operationalizations of dropout. While this is highly desirable in principle, it is unclear if such an amalgamation reflects clinical reality. An alternative possibility is that the current ways of measuring dropout are measuring distinct types of clients who dropout in clinically different ways. If there are multiple types of clients who dropout, then the difficulty in interpreting dropout research could be rooted in our implicit assumption that dropout operationalizations

are functionally equivalent and *should* converge. That is, is it possible that the discrepancy in reported rates of dropout definitions (Hatchett & Park, 2003; Imel et al., 2013; Pekarik, 1985; Swift & Greenberg, 2012) is actually a feature, not a bug?

Whereas meta-analytic reviews and other empirical studies point to the potential differences between operationalizations used in *different* studies and datasets, their aggregate nature has failed to contextualize the findings *within* a single dataset. As Imel et al. (2013) report in a meta-analysis of dropout from treatments of post-traumatic stress disorder, type of intervention played a large role in a study’s reported dropout rate. They suggest that dropout rate is perhaps more “an indicator about the study itself” and that comparing across studies should be done with caution. Further clouding interpretation is the reality that common strategy in these important meta-analytic studies is to aggregate research and dropout rates as however they were defined and measured by the individual study authors (Dixon & Linardon, 2020; Imel et al., 2013; Karekla et al., 2019; Roos & Werbart, 2013; Sharf et al., 2010; Simmons et al., 2021).

If meta-analyses introduce an undesirable amount of “inter-study” variance that makes it difficult to interpret results, then perhaps a large enough single study would be helpful. In such a study, one would reduce the impact of how disparate study designs might affect calculated rates of dropout, and instead shift more attention towards examining whether different operationalizations of dropout are measuring the same thing in the first place. In other words, is it truly the case that a client missing their last session and a client whose therapist judged them to have dropped out are interchangeable operationalizations of dropout and functionally identical?

A previous study by Swift et al. (2009) examines this potential specificity of operationalization. They assessed the use of clinically significant change as an operationalization of dropout, comparing it to five other dropout definitions, and broadly found low agreement between definitions. However, the data were collected in a single training clinic, potentially limiting the generalizability of the findings. To further understand the nature of the construct and underlying population(s) of dropout, further research necessitates the collection of large samples ideally within the same treatment setting and serving the same treatment population to be large enough to ensure adequate membership for comparison between each definition and to minimize the impact of potential conflating variables. Another study found a similar disparity between three operationalizations of dropout from a single site’s child and adolescent treatment but did not include clinically

significant change as a definition (Warnick et al., 2012).

Naturalistic settings seem particularly appropriate for this purpose, as a meta-analysis has reported higher dropout rates in effectiveness studies than in efficacy studies, at 26% compared to 17% (Swift & Greenberg, 2012). This meta-analysis further identified the “university-based clinic” as the setting experiencing the highest rates of dropout. It is also the case that college counseling centers are experiencing a growth in utilization outpacing increases in university enrollment (Center for Collegiate Mental Health, 2015b; Xiao et al., 2017a), and so a treatment dropout can represent a particularly inefficient use of resources on an already overtaxed system. In other words, the college counseling center is a confluence of circumstance and opportunity that is particularly in need of, and can also provide, empirical data on dropout.

The present study was conducted in a large practice-research network (PRN), the Center for Collegiate Mental Health (CCMH), which comprises a nationally representative group of college counseling centers. As part of the CCHM infrastructure, participating centers contribute standardized data, which allows for the examination of multiple operationalizations of dropout across settings and within the same clinical population. Additionally, the CCMH data permit an examination of therapist effects, which have been observed not only with regard to outcome (Baldwin & Imel, 2013) but also in terms of dropout. That is, different therapists experience variable rates of dropout, above and beyond prediction by client level characteristics (Saxon et al., 2016; Xiao et al. 2017b; Zimmermann et al., 2017). It stands to reason that there could also be different contributions of therapist level variance to these groups. Are there particular definitions of dropout more impacted by therapist level variance, for which the therapist has a larger degree of influence than others? As highlighted by Roos and Werbart’s literature review (2013), there are several therapist factors that impact dropout rates, and further examination would be helpful.

CCMH data further enables the examination of center-level variance. Clients are nested (assigned) within therapists, who are nested (employed) within centers. A recent study involving 116 counseling centers found relatively small center level effects in terms of symptom change (Carney et al., 2021), similar to the findings of two studies conducted in psychological therapy clinics in the UK (Firth et al., 2019; Pybis et al., 2017), where centers explained 1.9% of the post-treatment outcome averaged across seven measures of distress (a larger average effect of 3.2% was found with respect to

the rate of change during treatment). However, it is possible that much in the same way that operationalization matters for dropout, measuring center level variance might necessitate a more nuanced approach. That is, while there may be little center variance in terms of overall aggregate client change, there are many ways in which a center might differ in clinical meaningful ways. For example, center policies might dictate number of sessions, frequency of sessions, no-show fees, text or e-mail reminders, referral processes, and attendance policies for therapist-initiated termination; each of these could feasibly impact a clinician’s ability to provide services.

For studies conducted in private practice settings, these operational policies would most likely be analyzed as “therapist-level” variables. After all, even when they work within a group practice, it is frequently up to individual therapists to determine many specific and concrete operations of their practice. However, examining these operational policies at the therapist level adds an arguably “impersonal” element to understanding the complicated therapist effect. Such logistical decision-making variables are undiscernibly mixed with a host of personal, relational, skills factors (e.g., ability to create and maintain alliance, humility, deliberate practice) that are potentially involved in differential effectiveness of therapists.

Instead, it could be particularly insightful to examine these variables at a separate (third) level. With such a distinction, one might be better able to parse out the impact of these “policy” types of variables on their own, rather than in contention with other therapist-level variables occurring in the context of many clinical environments. In this way, college counseling centers might provide a particularly useful entry point to assessing the existence of center level effects.

In comparison with other naturalistic settings, the counseling center exhibits more clearly established boundaries between what is happening in the therapy room and the rules governing the operation of the therapy room. It should also be mentioned that while university counseling centers represent a unique treatment setting, concerns about their lack of generalizability should be tempered by the level of severity of the problems experienced by many of their clients (Xiao et al., 2017a), as well as by pre-post changes achieved by clinically distressing clients treated in these centers – changes that are comparable to those of clients in randomized clinical trials (McAleavey et al., 2019).

Accordingly, the present study has three goals. The first is to establish the base rate of three different, clinically indicated operationalizations of dropout, including their conjunctions, within a

single dataset to assess the viability of a singular unifying operationalization. Two of these definitions are more commonly used in the literature as examined by several meta-analyses: clients who fail to attend their last scheduled session and clients whose therapists judged the treatment to have ended prematurely (Imel et al., 2013; Swift & Greenberg, 2012, 2014; Wierzbicki & Pekarik, 1993). Our third operationalization takes into account arguments that objective measurement of client symptom change is an important component of dropout determination (Hatchett & Park, 2003; Swift et al., 2009; Swift & Greenberg, 2012, 2014). We adopted a form of clinically significant change (CSC) as Swift et al. (2009) used in their study on disparate dropout definitions. However, we argue that the call to include failure to achieve CSC as a component of a standardized dropout operationalization is too liberal, and instead use the inverse: demonstration of a negative RCI, or deterioration.

CSC is defined as a combination of achieving a reliable change index, or a change in scores that is statistically unlikely to have arisen through measurement error (Jacobson & Truax, 1991), coupled with a return of symptoms to nonclinical range. Notably, a reliable change index can occur in a positive (reliable improvement) or negative direction (reliable deterioration). While we agree assessment of symptoms could be an important component of a “gold standard” for dropout measurement, we argue that deterioration, rather than a failure to recover, is a more clinically meaningful operationalization. In the single site study of Swift et al. (2009) for example, 77% of clients were characterized as having dropped out using the failure to achieve CSC definition. In another cohort of CCMH data, using an RCI improvement requirement for defining dropout resulted in a 74.4% rate of dropout (Xiao et al., 2017c).

If the call for including symptom measurement in dropout operationalization is directed towards more reliably identifying clients whose treatment ended “prematurely”, then we posit that the suggested “failure to achieve CSC”, which can result in three quarters of clients being identified as “dropping out” (Swift et al., 2009; Xiao et al., 2017c), overidentifies members of this group. As a similarly objective alternative, we chose to examine deterioration, or negative CSC, guided by the clinical lens that a client who reliably worsens in treatment likely would benefit from additional care. In other words, we suggest that to label all clients who fail to fully recover from symptoms as dropouts is perhaps overinclusive, and that as an alternative, a client who has reliably deteriorated better fits the construct of a client who has most assuredly

ended treatment without appropriate abatement of symptoms.

It is important to note that there already exists a rich literature on treatment deterioration (e.g., Lambert, 2013; Mohr, 1995; Rozental et al., 2018); we are not suggesting that dropout is equivalent to deterioration. Rather, we agree that objective symptom measurement could be a useful operationalization or component of more reliable measurement of dropout, and suggest that reliable deterioration is a more clinically appropriate and interpretable operationalization than using failure to achieve CSC.

The second goal is to expand upon findings on the existence of therapist effects for rates of dropout (Saxon et al., 2016; Xiao et al. 2017b; Zimmermann et al., 2017). In this case, the therapist level variance will be separately calculated for each of the proposed operationalizations of dropout. Especially if there is little co-occurrence or overlap of client membership of definitions, a greater understanding of when therapist effects are most pronounced could lead to more focused future research on managing dropout by targeting mutable therapist level variables for highly impacted (by therapist variance) and specific dropout operationalizations. If therapist effects vary between definitions, this lends further support to the proposal that there are different types of dropout.

Finally, a third level of variance will be measured as the center effect. As each therapist is working within a center, and centers presumably vary in different ways, such analyses will also allow for a comparison of therapist-level compared to center-level variance.

Method

Participants

Clients participating in this study received individual therapy during the 2015–2016 academic year at CCMH counseling centers. Clients must have attended at least one therapy session and have been scheduled for at least two, with a primary therapist who conducted at least half of their sessions. These sessions were completed during a single course of therapy in the year, defined as no session occurring greater than 90 days apart from the previous. Clients were included only if all three instruments described in the next section were completed: Standardized Data Set (SDS), Counseling Center Assessment of Psychological Symptoms (CCAPS), and Termination Form. Clients must also have completed one CCAPS within 14 days of the first appointment and one within 14 days of the last appointment to capture change across therapy. Therapists must have seen at least 5 clients and

centers must have had at least 5 therapists to maximize accuracy in calculating therapist/center level effects and also capitalize on the most available data. This resulted in a dataset of 2,977 clients seen by 234 therapists at 17 counseling centers. Clients were on average 22.10 ($sd = 4.53$) years of age and 66.8% self-identified as female. Additionally, 61.5% self-identified as White/Caucasian, 11.5% as Hispanic/Latino/a, 10.6% as Black/African American, 7.5% as Asian/Asian American, 6.5% as multi-racial, and less than 2.0% each as American Indian, Alaskan Native, Native Hawaiian, or other race/ethnicity.

Therapists. Based on 76 therapists who provided demographic information, they were on average 40.72 ($sd = 12.28$) years of age, 81.6% were female, 71.0% White/Caucasian, 7.9% Black/African American, 3.9% Hispanic/Latino/a, 5.3% Asian/Asian American, 5.3% Multi-Racial, and 6.6% of some other race or ethnicity. On average, they saw a total of 12.72 clients each ($sd = 8.39$), with a range of 5 to 64 clients.

Counseling centers. Of the 17 counseling centers in the dataset, they had an average of 13.76 therapists ($sd = 8.62$), and each center provided treatment to an average of 175.12 clients ($sd = 128.65$). Approximately, 71% of the centers were in public institutions and 29% in private institutions. Average enrollment at these institutions was 19,103 students with a standard deviation of 16,019.

Instruments

Standardized Data Set (SDS). The SDS was created from the collective intake materials of 50 counseling centers (see Hayes et al., 2011), and covers a broad array of client, therapist, and center demographic variables. The items are categorical in response choice. While not used in analyses, the SDS provided the demographic information highlighted above.

Counseling Center Assessment of Psychological Symptoms (CCAPS). The CCAPS is a self-report measure specifically developed to assess the mental health of college students (Locke et al., 2011). The 34-item version contains 8 subscales: Depression, Generalized Anxiety, Social Anxiety, Academic Distress, Eating Concerns, Hostility, Alcohol Use, and a Distress Index (DI) which provides an overall level of symptomology by taking key items from multiple scales. It has demonstrated acceptable internal consistency and retest

reliability, and its individual subscales have shown good concurrent validity (Locke et al., 2012; McAlleavey et al., 2012; Nordberg et al., 2016).

Additionally, the reliable change index (RCI) scores are calculated and reported for each subscale in a technical manual (Center for Collegiate Mental Health, 2015a). An RCI refers to a change in scores that is statistically unlikely to have arisen through measurement error (Jacobson & Truax, 1991). This can occur in a positive (reliable improvement) or negative direction (reliable deterioration). This was used in the “symptom deterioration” classification of dropout described further below.

Termination Form. To be completed by the treating therapist at the end of a treatment for individual clients, the Termination Form is an optional questionnaire. It was designed to aid in understanding the characteristics of ending any given treatment. The form consists of 17 categorical responses (including a free response “other” option) in a checklist, where therapists can indicate any and all that apply to a given course of therapy with a client. Categories used in this study are described below, and include “Client drop out (e.g., no-show, cancellation, no response, etc.),” “Termination against provider recommendation,” “Referred out for continuation of services”, and “Referred out to a higher level/specialized care.”

Procedure

Clients completed the SDS and CCAPS prior to their initial appointment, and they completed the CCAPS periodically throughout treatment to measure treatment progress; frequency of CCAPS administration was determined by individual counseling centers. Therapists completed the Termination Form after the final session. The SDS and the CCAPS were administered, scored and stored using Titanium software. Individual counseling centers received approval to contribute data to CCMH through their local Institutional Review Boards (IRBs). Additional IRB approval was obtained to pool and analyze the data, which had been de-identified data at the client, therapist, and center levels.

Operationalization of Dropout

Careful consideration of defining the three separate dropout operationalizations was essential to fulfill the study’s aims. From the starting definition as a client-initiated cessation of treatment before recovery of symptoms (Hatchett & Park, 2003), each

operationalization was created to emphasize a particular component of the construct. There was no overlap of the definitions in terms of variables used during operationalization. The resulting definitions are not mutually exclusive, allowing for examination of unique and co-occurrence of the rates of operationalizations.

First, “attendance-based” dropout was assigned to clients who missed their last scheduled therapy session due to having canceled, no-showed, or rescheduled without attending further sessions. This definition emphasizes the “client-initiated” concept of dropout. Using this definition, clients who drop out had made an implicit agreement with their therapy provider to attend at least one additional session without follow-through. Irrespective of the other definitions, a final session was scheduled by the treatment center and never completed.

Second, “therapist-rated” dropouts were based solely on the therapist-completed termination form. Upon completion of therapy, clients whose therapists rated them as “Client drop out (e.g., no-show, cancellation, no response, etc.)” and/or “Termination against provider recommendation” were designated as dropouts. In this case, the primary therapeutic provider of the client made a judgment on their treatment together and indicated that the termination of treatment was not the provider’s decision.

Finally, “symptom deterioration” dropout was characterized using quantitative pre–post symptom change on the CCAPS. As detailed previously, we posit that reliable symptom deterioration might be a better usage of CSC than the oft-suggested failure to achieve reliable (Hatchett & Park, 2003; Swift et al., 2009; Swift & Greenberg, 2012), with deterioration (negative CSC) potentially better representing clients who ended treatment who would have benefited from additional care. Clients who deteriorated by one RCI from first appointment to last appointment on at least one of the 8 subscales were categorized as dropouts (all included clients were found to have come into treatment able to deteriorate on at least one subscale). Additionally, these clients were not to have been labeled as having been “referred out for continuation of services” or “referred out to a higher level/specialized care”. This combination was chosen to best personify a client who, on some measured domain, ended treatment reliably and objectively more symptomatic than when they started, and there was no indication that the client was continuing services elsewhere.

Taken altogether, these three definitions are operationally separate, and each conceptually and non-exclusively fulfills some facet of the dropout construct. It is important to note that each individual

in the dataset could meet each and any number of these definitions.

Statistical Analyses

Analyses were conducted in R version 3.5.3 and using the package lme4 (Bates et al., 2015; R Core Team, 2016). Frequencies of the three operationalizations (dropout by attendance, therapist-rating, or symptom deterioration) are presented in Figure 1 as a Venn diagram, which uses ellipses to convey the proportional associated areas with greater visually scaled accuracy (Micallef & Rodgers, 2014). Additionally, Table I lists the additional percentages and n of various sets of the definitions. Kappa coefficients were calculated to assess “inter-definitional” reliability (i.e., do the definitions tend to co-occur?), displayed in Table II (Swift et al., 2009).

A series of multilevel logistic regression models were tested to arrive at a final model for each definition. Logistic regression was chosen as each outcome was considered dichotomous: they either meet or fail to meet the respective criteria for

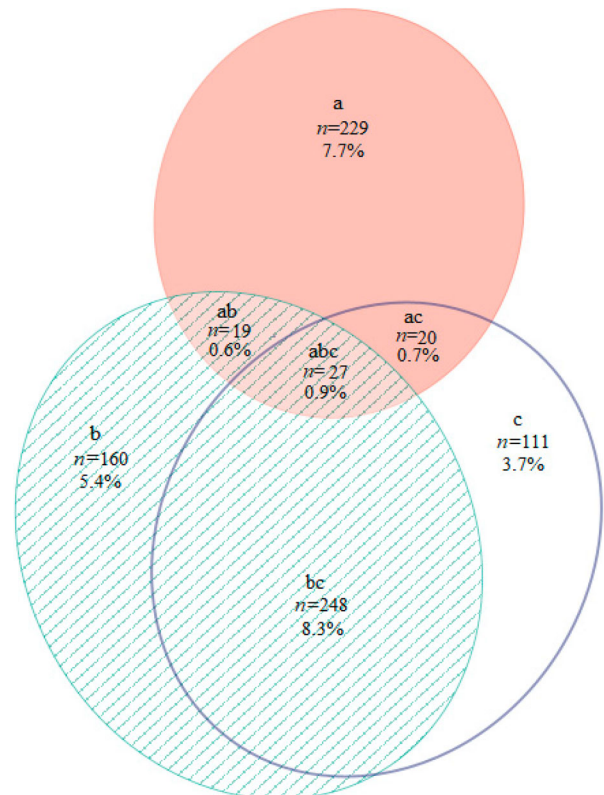


Figure 1. Intersections among three definitions of dropout. Note: a = deterioration-based definition, b = attendance-based definition, c = therapist-rated definition. Values represent intersections (e.g., ab = only individuals meeting criteria for both deterioration-based definition AND attendance-based definition). Percentiles based on complete data ($n = 3081$).

Table I. Frequencies of dropout categories.

Set	<i>n</i>	percentage
Any definition	814	27.3
At least deterioration	295	9.9
At least attendance-based	454	15.3
At least therapist-rated	406	13.6
All 3 definitions	27	0.9

Note. Total *N* = 2977.

dropout (by attendance, therapist rating, or symptom deterioration). For this study, clients were statistically nested within their treating therapist, whom in turn were nested in their counseling center. For each of the three operationalizations, we started from an empty single-level model and added client’s initial DI (the global measure of distress on the CCAPS, used in this study to control for initial level of distress) as a fixed client level variable when for found to be a significant improvement in fit using a log-likelihood ratio test. The log likelihood ratio test is a goodness of fit test indicating the likelihood of results occurring under one model compared to the other, when there is only one additional parameter to estimate (one fewer degree of freedom); in this case, the difference was the inclusion of the initial DI as a parameter.

To then test for the presence and extent of therapist and center effects, therapist and center effects were represented as random intercepts, allowing for variation in intercepts to reflect the hypothesized variance of the impact of different therapists and centers; these variances are the therapist and center level effects, respectively. These effects are equivalent to intraclass correlations (ICCs) in the therapist and center levels of our three-level models (clients nested within therapists nested within centers). ICCs were calculated as the variance at any specific level (i.e., client, therapist, or center level variance) divided by the total variance, providing a proportion of variance attributed to each level of the model (Leckie, 2013). For logistic models, the initial level (i.e., client-level in our study) is a constant, calculated as $\pi^2/3$ (Steele, 2008). Three models were subsequently created, one for each

dropout definition. As a result, a final model for each dropout operationalization was generated in stepwise manner – starting from an initial empty model, and then adding initial client DI level, random therapist-level intercepts, and random center-level intercepts when doing so would improve the fit of the model.

Data Transparency Statement

The data examined in this study have not been published elsewhere. As stated previously, institutional review board approval was obtained from every university that contributed data.

Results

As seen in Figure 1 and Table I, 27.3% (*n* = 814) of the clients met criteria for at least one of the three operationalizations of dropout, but only 0.9% (*n* = 27) met criteria for all three simultaneously. Additionally, 5.4% (*n* = 160), 3.7% (*n* = 111), and 7.7% (*n* = 229) of individuals met criteria for ONLY the attendance-based, therapist-rated, and deterioration dropouts, respectively. In other words, of the 814 individuals meeting criteria for dropout, 61.4% (*n* = 500), met criteria for only one of the definitions. The largest overlap between definitions occurred between the attendance-based and therapist-rated operationalizations, with 9.2% (*n* = 275) of all individuals meeting criteria for both, amounting to 60.6% of all attendance-based and 67.7% of all therapist-rated dropouts. By contrast, deterioration dropouts only shared 15.6% and 15.9% of its set with attendance-based and therapist-rated dropouts, respectively. This was reflected in the kappa coefficients (Table II), in which only the agreement between attendance-based and therapist-rated dropouts was moderate and also significant ($\kappa = .579, p < .001$) (Landis & Koch, 1977).

In calculation of therapist and center effects, controlling for initial DI scores led to significant improvements in model fit from null models for attendance-based ($\chi^2(1) = 7.88, p = .005$) and therapist-rated ($\chi^2(1) = 8.38, p = .004$) dropouts, but not for deterioration dropouts ($\chi^2(1) = 2.58, p = .108$). For attendance-based and therapist-rated final models, a 1-point increase in initial DI was associated with, respectively, a 20.0% ($\beta = .18, SE = .07$) and 20.9% ($\beta = .19, SE = .07$) increase in odds for an individual being classified as a dropout for that definition.

Inclusion of random intercepts at the therapist and center levels provided significant improvement for all three models of dropout; respectively, the test

Table II. Kappa coefficients reflecting agreement among three definitions of dropout.

Definition	1	2	3
1. Deterioration	—	.003	.022
2. Attendance-Based		—	.579*
3. Therapist-Rated			—

Note. * *p* < .001.

statistics were for therapist-rated: $\chi^2(2) = 146.60$, $p < .001$, attendance-based: $\chi^2(2) = 127.06$, $p < .001$, and deterioration: $\chi^2(2) = 24.00$, $p < .001$. For attendance-based dropout, therapist and center effects were 10.0% and 6.7%, respectively (16.7% total variance explained). For therapist-rated dropout, therapist and center effects were 11.1% and 7.6%, respectively (18.7% total variance explained). For deterioration-based dropout, therapist and center effects were calculated as 1.9% and 4.6%, respectively (6.5% total variance explained).

Discussion

The present study aimed to clarify the finding that different definitions of dropout lead to large differences in calculated rates (Hatchett & Park, 2003; Pekarik, 1985; Swift & Greenberg, 2012) by examining the rates of co-occurrence of three operationalizations of dropout using analyses conducted on a singular data source. The definitions were selected to maximize clinical utility while still meeting key components of the construct. “Attendance-based” reflected the lack of agreement between therapist and client regarding termination, “therapist-rated” emphasized the clinical judgment of a therapist determining that a client had dropped out, and “deterioration” focused on the ending of treatment with a reliable worsening of symptoms. This study also assessed the therapist and center effects for each of these three definitions.

Whereas more than 1 in 4 clients were found to have been categorized as a dropout in at least one category, fewer than 1% of the clients met criteria for all three. As each client was eligible to meet criteria for each of the definitions, these results suggest that there are different types of clients who drop out that are not easily assessed using a single definition. This could, in part, explain the heterogeneity of findings in predicting dropout (Reis & Brown, 1999).

Using clinically significant change as part of a standardized operationalization has been recommended for future dropout research (Hatchett & Park, 2003; Swift et al., 2009; Swift & Greenberg, 2012), but this study identified “deterioration” dropouts (i.e., negative clinically significant change) were found to be quite different from the other groups in this study, a similar finding to another study comparing multiple definitions of dropout (Swift et al., 2009). In other words, using clinically significant change in either direction (positive or negative) appears to apply to different individuals than those classified as either an attendance-based or therapist-rated dropout. Appending CSC to an operationalization of dropout (let alone as a standalone

definition of dropout) could thus produce markedly different results from a markedly differently treatment subpopulation.

This conflict presents itself for any individual definition. For example, a frequently adopted definition of dropout for effectiveness studies is a start of a treatment protocol with failure to complete (e.g., Fernandez et al., 2015). While this makes sense within the context of a randomized clinical trial, this form of dropout can occur independently from any actual measured clinical change. That is, to focus solely on any single form of dropout can lead to a “miss” of other clinically distinctive forms of dropout.

Roughly one-third of therapists did not rate those who failed to attend their last session as dropouts (and vice versa), although these two definitions were much more similar to each other than to the deterioration definition; roughly 85% of clients met criteria for deterioration dropout did not meet criteria for attendance-based nor therapist rated dropouts. One might interpret this as a commonality between therapist definitions of dropout: many appear to use last session attendance at least as part of a personal definition of dropout. In contrast, deterioration on a repeated measure subscale does not seem to be as related to last session attendance nor a therapist’s interpretation of dropout. That is not to imply therapists consider symptom change to be unimportant to the construct of dropout, but in routine clinical practice, such data does not appear to highly correlate with or inform a therapist judgment of dropout.

Regarding therapist and center level effects, the results strongly support the idea that higher order variables play a notable role in dropout variance. The variance accounted for by higher level analyses for the deterioration dropout definition fell within the upper range of the robust existing literature at 6.5% (Baldwin & Imel, 2013). The other two definitions, attendance-based and therapist-rated, respectively reached a striking 16.7% and 18.7%.

Interestingly, center level variance accounted for over two thirds of the higher order variance (therapist and center level) explained in the deterioration dropout model. It was beyond the scope of this study to explore why, but it could perhaps be reflective of center level policies, such as treatment length and frequency, having a larger role in client change than therapist-level characteristics, at least in the brief treatment model of the counseling center. In other words, regardless of therapist skill, if the treatment modality does not allow for enough treatment to take place, treatment ending with a worsening of symptoms could be more likely to occur.

For the attendance and therapist-rated dropout models, roughly 40% of the higher level variance was accounted for by the center. This near-even split between therapist and center level variance leads to interesting questions. While we might think that the therapeutic relationship at the therapist level is especially impactful for a client's attendance, it appears that almost half of the sizable 16.7% higher order variance is accounted for by center characteristics. Perhaps a center policy regarding a client no-show contributes to treatment termination on a missed session; for example, a center might simply state that some number of no-shows leads to automatic termination, precluding any therapist's efforts to meet with a client again. Or perhaps certain centers implement practices that alter attendance, such as appointment reminders or no-show fees.

Center characteristics contributed 7.6% of the 18.7% higher order variance for therapist-rated dropouts. In other words, even when the definition depends on a therapist's personal judgment of dropout, their decision is substantially impacted by what center they are working in. This is surprising but consider the following hypothetical situation: a client is offered bi-weekly or shortened sessions given demand at the counseling center, and decides this is not viable, and unilaterally terminates treatment. The therapist might judge this to be a drop out, but ultimately, a center characteristic informed a large portion of the client's decision.

These findings highlight the intricacy of determining "what does the center control during treatment that the individual therapist does not?" It is consistent with the call for more research on how to reduce dropout rates (Hatchett & Park, 2003; Pekarik, 1985; Swift & Greenberg, 2012, 2015), and the remarkably elevated higher order variance at both the therapist and center levels in this study seems to indicate the counseling center as fertile ground to explore actionable strategies to mitigate dropout. One could consider a college counseling center to be a "group practice" with clearly separated therapist and "group practice" (i.e., center policy) levels of impact to explore. In so doing, future research might be more focused and directed, aimed at specifically examining policies or actions that have already been linked to changes in rates of dropout.

Taken altogether, although the heterogeneity of operationalization has led to difficulty in replication and generalizability of results (Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993), the present study indicates that condensing to a single definition might be more complicated than anticipated. We agree that methodological transparency is necessary when conducting future research, but adopting a

single definition might not be most useful. This is especially the case regarding the strong recommendations towards using CSC in dropout operationalization (Hatchett & Park, 2003; Swift et al., 2009; Swift & Greenberg, 2012). Given the disparity between CSC and other dropout operationalizations, moving towards a "gold standard" incorporating CSC might be improperly combining distinct types of clients. Additionally, this could unintentionally undermine the importance of previous dropout studies which did not or were unable to incorporate CSC. Rather than those studies "missing a required component" of dropout, it is perhaps more accurate that they were measuring specifically distinct types of clients who drop out. This is further highlighted by the different magnitudes of therapist and center level variances per definition.

Taken altogether, these results highlight the importance for future dropout studies to be clear and *intentional* about how a particular operationalization is chosen. Whereas a uniform adoption of a "gold standard" operationalization is a way to generate more consistent and generalizable research, it also appears to artificially homogenize a diversity in clients. Simply put, a client who fails to attend their last session, a client whose therapist "feels" they dropped out, and a client whose treatment measures indicate inadequate treatment are very different types of dropouts, and, arguably, are different clinical interpretations of a complex construct. The decision of how to operationalize dropout reflects an important design decision characterizing the aims of the research contextualized by treatment population, provider, and/or setting.

This could be particularly important at the meta-analytic level, in the place of aggregating heterogeneous author reported dropout rates. A common strategy in these vital studies aggregates research and dropout rates as however they were defined and measured by the individual study authors (Dixon & Linardon, 2020; Imel et al., 2013; Karekla et al., 2019; Roos & Werbart, 2013; Simmons et al., 2021). Rather than assuming all dropout is equivalent, grouping studies with like operationalizations might offer more consistency and replicability in results. As it stands, an operationalization of "failure to complete treatment protocol" in a randomized-controlled-trial might be aggregated and treated as functionally equivalent to last-session non-attendance in a community mental health clinic; both are "dropout", but the former definition might be wholly inapplicable to the latter.

Instead, dropout rates should be compared between studies with functionally equivalent operationalization of dropouts. This increase in specificity would increase consistency and would also lend itself

to better understanding higher order variables and effects. The efforts to standardize our measurement of dropout and maximize replicability should not come at the cost of validity. Reliability is necessary, but not sufficient, for validity (Roberts & Priest, 2006); we cannot force a single definition and expect it to validly measure different types of dropout.

Limitations

Several important limitations of the current study should be noted. Firstly, the deterioration operationalization could be considered non-specific since the requirement was at least one RCI deterioration in any subscale. For this study, this operationalization was created in the spirit of capturing any reliable and substantial negative symptom change. That is, irrespective of the client's initial presentation, they would meet this definition if they ended treatment in a reliably worse state in at least one major clinical domain. It could be argued that a more rigorous operationalization could involve deterioration in a client-specific subscale, for example the highest initial subscale score. This is perhaps supported by the non-significance of initial DI score in the generation of the deterioration dropout final model: the DI subscale, while meant to be an overall measure mental health, does not draw equally from all subscales, and so the initial DI score might not be expected to strongly predict deterioration in all other subscales. While a more specific symptom change dropout operationalization is certainly an option for future research, the present study aimed to create a clinically valid definition of dropout – regardless of how a client enters treatment, it is likely a clinical concern if by the end, they had reliably and significantly worsened in some way.

In estimation of therapist effects, a minimum of 5 clients per therapist and 5 therapists per center might be considered too low. More conservative requirements would be helpful. However, based on a study investigating sample size issues in relation to therapist effects, raising the number of required clients per therapist to 10 (or higher), would result in a less accurate calculation of therapist effects (Schiefele et al., 2016). That is, in this particular sample, simply increasing the number of required clients to 10 per therapist, the number of viable therapists drops roughly 50%, and the confidence interval band for a 95% confidence interval for detection of therapist effects actually grows slightly wider (i.e., less accurate). For this reason, and to maximize available data, the present study opted to use a minimum of five clients per therapist and five

therapists per center. Without a doubt, more therapists and clients per therapist, and more therapists per center would increase the accuracy in detecting therapist and center effects for future studies.

The sample is derived from college counseling centers, which could limit generalizability. However, as noted, there are distinct advantages to this as well. There is also evidence that there is little difference in prevalence and severity of mental disorders between age-matched college students and non-students (Blanco et al., 2008; Gallagher, 2015). More importantly, dropout is a ubiquitous phenomenon when it comes to psychotherapy, and the systems in place at college counseling centers may prove quite beneficial to dropout research. Additionally, it allows for a finer examination of therapist and center level characteristics. It is possible that there are certain aspects of the treatment setting that may impact generalizability. For example, college counseling centers frequently involve time-limited treatment to meet an increasing demand for services (Xiao et al., 2017a), in addition to other contextual factors such as the imposition of the academic calendar year, which certainly can vary between centers in a way not possibly measured in this study. Similarly, while,

Conclusion

Efforts to increase our understanding of psychotherapy dropout have resulted in recommendations to adopt a uniform operationalization (Hatchett & Park, 2003; Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993). However, the results of this study suggest that there are distinct types of client who are captured with distinct dropout operationalizations, and that adopting any single definition results in exclusion of substantial numbers of clients (perhaps in unintended fashion). This is especially true for incorporation of CSC in a dropout operationalization; while it makes sense to include an symptom-based component of dropout, it also appears to be in opposition to other clinically appropriate understandings of dropout, such as therapist-rated or attendance-based.

It is ultimately up to the researcher to choose a dropout operationalization that best fits the study. Likewise, it could prove quite fruitful for future meta-analytical research to reconsider the current impetus towards homogenization of dropout to one that more accurately reflects its multi-faceted clinical reality. While dropout may be an unavoidable aspect of any provider-client relationship, more focused dropout research could ultimately lead to a more robust body of literature that can serve to improve

the effectiveness and efficiency of delivering psychological services, an especially exciting future direction given the magnitude of higher order center and therapist effects found in this study.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

References

- Baldwin, S. A., & Imel, Z. E. (2013). Therapist effects: Findings and methods. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (6th ed., pp. 258–297). Wiley.
- Barrett, M. S., Chua, W. J., Crits-Christoph, P., Gibbons, M. B., & Thompson, D. (2008). Early withdrawal from mental health treatment: Implications for psychotherapy practice. *Psychotherapy: Theory, Research, Practice, Training*, 45(2), 247–267. <https://doi.org/10.1037/0033-3204.45.2.247>
- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>
- Blanco, C., Okuda, M., Wright, C., Hasin, D. S., Grant, B. F., Liu, S. M., & Olfson, M. (2008). Mental health of college students and their non-college-attending peers. *Archives of General Psychiatry*, 65(12), 1429–1437. <https://doi.org/10.1001/archpsyc.65.12.1429>
- Carney, D., Castonguay, L. G., Janis, R. A., Scofield, B. E., Hayes, J. A., & Locke, B. D. (2021). Center effects: Counseling center variables as predictors of psychotherapy outcome. *The Counseling Psychologist*, 49(7), 1013–1037. <https://doi.org/10.1177/00110000211029271>
- Center for Collegiate Mental Health. (2015a, June). *CCAPS 2015 technical manual*.
- Center for Collegiate Mental Health. (2015b, December). *CCMH 2015 annual report*.
- Dixon, L. J., & Linardon, J. (2020). A systematic review and meta-analysis of dropout rates from dialectical behaviour therapy in randomized controlled trials. *Cognitive Behaviour Therapy*, 49(3), 181–196. <https://doi.org/10.1080/16506073.2019.1620324>
- Fernandez, E., Salem, D., Swift, J. K., & Ramtahal, N. (2015). Meta-analysis of dropout from cognitive behavioral therapy: Magnitude, timing, and moderators. *Journal of Consulting and Clinical Psychology*, 83(6), 1108–1122. <http://doi.org/10.1037/ccp0000044>
- Firth, N., Saxon, D., Stiles, W. B., & Barkham, M. (2019). Therapist and clinic effects in psychotherapy: A three-level model of outcome variability. *Journal of Consulting and Clinical Psychology*, 87(4), 345–356. <https://doi.org/10.1037/ccp0000388>
- Gallagher, R. (2015). *National survey of counseling center directors 2014*. International Association of Counseling Services. http://d-scholarship.pitt.edu/28178/1/survey_2014.pdf.
- Hatchett, G. T. (2004). Reducing premature termination in university counseling centers. *Journal of College Student Psychotherapy*, 19(2), 13–27. https://doi.org/10.1300/j035v19n02_03
- Hatchett, G. T., & Park, H. L. (2003). Comparison of four operational definitions of premature termination. *Psychotherapy: Theory, Research, Practice, Training*, 40(3), 226–231. <https://doi.org/10.1037/0033-3204.40.3.226>
- Hayes, J. A., Locke, B. D., & Castonguay, L. G. (2011). The center for collegiate mental health: Practice and research working together. *Journal of College Counseling*, 14(2), 101–104.
- Imel, Z. E., Laska, K., Jakupcak, M., & Simpson, T. L. (2013). Meta-analysis of dropout in treatments for posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 81(3), 394–404. <https://doi.org/10.1037/a0031474>
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59(1), 12–19. <https://doi.org/10.1037//0022-006x.59.1.12>
- Karekla, M., Konstantinou, P., Ioannou, M., Kareklas, I., & Gloster, A. T. (2019). The phenomenon of treatment dropout, reasons and moderators in acceptance and commitment therapy and other active treatments. *Clinical Psychology in Europe*, 1(3), 1–36. <https://doi.org/10.32872/cpe.v1i3.33058>
- Karlsson, R. (2005). Ethnic matching between therapist and patient in psychotherapy: An overview of findings, together with methodological and conceptual issues. *Cultural Diversity and Ethnic Minority Psychology*, 11(2), 113–129. <https://doi.org/10.1037/1099-9809.11.2.113>
- Lambert, M. J. (2013). Outcome in psychotherapy: The past and important advances. *Psychotherapy*, 50(1), 42–51. <https://doi.org/10.1037/a0030682>
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159. <https://doi.org/10.2307/2529310>
- Leckie, G. (2013). Module 11: Three-level multilevel models – concepts. LEMMA VLE, University of Bristol, Centre for Multilevel Modelling. <https://www.cmm.bris.ac.uk/lemma/mod/lesson/view.php?id=776>
- Locke, B. D., Buzolitz, J. S., Lei, P. W., Boswell, J. F., McAlaavey, A. A., Sevig, T. D., Dowis, J. D., & Hayes, J. A. (2011). Development of the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62). *Journal of counseling psychology*, 58(1), 97–109. <https://doi.org/10.1037/a0021282>
- McAlaavey, A. A., Nordberg, S. S., Hayes, J. A., Castonguay, L. G., Locke, B. D., & Lockard, A. J. (2012). Clinical validity of the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62): Further evaluation and clinical applications. *Journal of Counseling Psychology*, 59(4), 575–590. <https://doi.org/10.1037/a0029855>
- McAlaavey, A. A., Youn, S., Xiao, H., Castonguay, L. G., Hayes, J. A., & Locke, B. D. (2019). Effectiveness of routine psychotherapy: Method matters. *Psychotherapy Research*, 29(2), 139–156. <https://doi.org/10.1080/10503307.2017.1395921>
- Micallef, L., & Rodgers, P. (2014). EulerAPE: Drawing area-proportional 3-Venn diagrams using ellipses. *Plos One*, 9(7), 7. <https://doi.org/10.1371/journal.pone.0101717>
- Mohr, D. C. (1995). Negative outcome in psychotherapy: A critical review. *Clinical Psychology: Science and Practice*, 2(1), 1–27. <https://doi.org/10.1111/j.1468-2850.1995.tb00022.x>
- Nordberg, S. S., McAlaavey, A. A., Duszak, E., Locke, B. D., Hayes, J. A., & Castonguay, L. G. (2016). The counseling Center Assessment of Psychological Symptoms Distress Index: A pragmatic exploration of general factors to enhance a multidimensional scale. *Counselling Psychology Quarterly*, 31(1), 25–41. <https://doi.org/10.1080/09515070.2016.1202809>
- Ogrodniczuk, J. S., Joyce, A. S., & Piper, W. E. (2005). Strategies for reducing patient-initiated premature termination of psychotherapy. *Harvard Review of Psychiatry*, 13(2), 57–70. <https://doi.org/10.1080/10673220590956429>
- Pekarik, G. (1985). The effects of employing different termination classification criteria in dropout research. *Psychotherapy:*

- Theory, Research, Practice, Training*, 22(1), 86–91. <https://doi.org/10.1037/h0088531>
- Pybis, J., Saxon, D., Hill, A., & Barkham, M. (2017). The comparative effectiveness and efficiency of cognitive behaviour therapy and generic counselling in the treatment of depression: Evidence from the 2nd UK National Audit of psychological therapies. *BMC Psychiatry*, 17(1), 215. <https://doi.org/10.1186/s12888-017-1370-7>
- R Core Team. (2016). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. <https://www.R-project.org/>
- Reis, B. F., & Brown, L. G. (1999). Reducing psychotherapy dropouts: Maximizing perspective convergence in the psychotherapy dyad. *Psychotherapy*, 36(2), 123–136. <https://doi.org/10.1037/h0087822>
- Roberts, P., & Priest, H. (2006). Reliability and validity in research. *Nursing Standard*, 20(44), 41–46. <https://doi.org/10.7748/ns.20.44.41.s56>
- Roos, J., & Werbart, A. (2013). Therapist and relationship factors influencing dropout from individual psychotherapy: A literature review. *Psychotherapy Research*, 23(4), 394–418. <https://doi.org/10.1080/10503307.2013.775528>
- Rozental, A., Castonguay, L., Dimidjian, S., Lambert, M., Shafran, R., Andersson, G., & Carlbring, P. (2018). Negative effects in psychotherapy: A commentary and recommendations for future research and clinical practice. *BjPsych Open*, 4(4), 307–312. <https://doi.org/10.1192/bjo.2018.42>
- Saxon, D., Barkham, M., Foster, A., & Parry, G. (2016). The contribution of therapist effects to patient dropout and deterioration in the psychological therapies. *Clinical Psychology & Psychotherapy*, 24(3), 575–588. <https://doi.org/10.1002/cpp.2028>
- Schiefele, A., Lutz, W., Barkham, M., Rubel, J., Böhnke, J., Delgadillo, J., & Lambert, M. J. (2016). Reliability of therapist effects in practice-based psychotherapy research: A guide for the planning of future studies. *Administration and Policy in Mental Health and Mental Health Services Research*, 44(5), 598–613. <https://doi.org/10.1007/s10488-016-0736-3>
- Sharf, J., Primavera, L. H., & Diener, M. J. (2010). Dropout and therapeutic alliance: A meta-analysis of adult individual psychotherapy. *Psychotherapy: Theory, Research, Practice, Training*, 47(4), 637–645. <https://doi.org/10.1037/a0021175>
- Simmons, C., Meiser-Stedman, R., Baily, H., & Beazley, P. (2021). A meta-analysis of dropout from evidence-based psychological treatment for post-traumatic stress disorder (PTSD) in children and young people. *European Journal of Psychotraumatology*, 12(1), 1. <https://doi.org/10.1080/20008198.2021.1947570>
- Steele, F. (2008). Multilevel models for longitudinal data. *Journal of the Royal Statistical Society Series A*, 171, 5–19.
- Swift, J. K., Callahan, J. L., & Levine, J. C. (2009). Using clinically significant change to identify premature termination. *Psychotherapy: Theory, Research, Practice, Training*, 46(3), 328–335. <https://doi.org/10.1037/a0017003>
- Swift, J. K., & Greenberg, R. P. (2012). Premature discontinuation in adult psychotherapy: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 80(4), 547–559. <https://doi.org/10.1037/a0028226>
- Swift, J. K., & Greenberg, R. P. (2014). A treatment by disorder meta-analysis of dropout from psychotherapy. *Journal of Psychotherapy Integration*, 24(3), 193–207. <https://doi.org/10.1037/a0037512>
- Swift, J. K., & Greenberg, R. P. (2015). *Premature termination in psychotherapy: Strategies for engaging clients and improving outcomes*. American Psychological Association.
- Warnick, E. M., Gonzalez, A., Robin Weersing, V., Scahill, L., & Woolston, J. (2012). Defining dropout from youth psychotherapy: How definitions shape the prevalence and predictors of attrition. *Child and Adolescent Mental Health*, 17(2), 76–85. <https://doi.org/10.1111/j.1475-3588.2011.00606.x>
- Wierzbicki, M., & Pekarik, G. (1993). A meta-analysis of psychotherapy dropout. *Professional Psychology: Research and Practice*, 24(2), 190–195. <https://doi.org/10.1037/0735-7028.24.2.190>
- Xiao, H., Carney, D. M., Youn, S. J., Janis, R. A., Castonguay, L. G., Hayes, J. A., & Locke, B. D. (2017a). Are we in crisis? National mental health and treatment trends in college counseling centers. *Psychological Services*, 14(4), 407–415. <https://doi.org/10.1037/ser0000130>
- Xiao, H., Castonguay, L. G., Janis, R. A., Youn, S. J., Hayes, J. A., & Locke, B. D. (2017b). Therapist effects on dropout from a college counseling center practice research network. *Journal of Counseling Psychology*, 64(4), 424–431. <https://doi.org/10.1037/cou0000208>
- Xiao, H., Janis, R. A., Carney, D. M., Castonguay, L. G., & Locke, B. D. (2017c, June 21–24). *What is dropout? An exploration of definitions, therapist, and center effects within a practice research network* [Paper presentation]. As part of a panel at the 2017 Society for Psychotherapy Research International Meeting, Toronto, Canada.
- Zimmermann, D., Rubel, J., Page, A. C., & Lutz, W. (2017). Therapist effects on and predictors of non-consensual dropout in psychotherapy. *Clinical Psychology & Psychotherapy*, 24(2), 312–321. <https://doi.org/10.1002/cpp.2022>