Do relationship investment plans increase couples' commitment to therapy?

by

Brady Christopher Eisert

B.S., Brigham Young University, 2019
M.S., Brigham Young University, 2021

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Applied Human Sciences
College of Health and Human Sciences

KANSAS STATE UNIVERSITY
Manhattan, Kansas

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Abstract

Dropout in couple therapy is higher than individual or family therapies. Up to 60% of couples do not complete their treatment plans, which is concerning given the investment in time, money, and energy that goes into therapy. The Relationship Investment Plan (RIP) was created at a Midwestern relationship therapy clinic to harness clients' self-determined motivation to commit to therapy by providing a discount for services within a given subscription period. A Bayesian generalized linear mixed model of 532 cases was used to assess the efficacy of the RIP with both fixed and therapist-varying effects. The final model revealed that RIP enrollment was associated with attending over twice the number of post-intake sessions, fixed across therapists. Therapist experience had therapist-varying (random) effects on retention, and the average number of sessions attended by couples varied by therapist. The relationship length of the couple as well as using a mixed format of therapy (both in-person and telehealth) were also associated with more sessions. Results are discussed in light of the sample and method. Clinical implications regarding the implementation of the RIP are provided.

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Dedication

This dissertation is dedicated to being a small step towards healing the trauma inflicted on and by my ancestors as the result of war.

Chapter 1 - Introduction

For decades, couple therapy practitioners and scholars have investigated the various correlates of client improvement and dropout. Compared to other case types (i.e., individuals and families), couples struggle the most to complete therapy. They have the highest rates of premature therapy termination, with estimates that 20 to 60% of couples do not complete their treatment plan (S. R. Anderson et al., 2019; Doss et al., 2011; Masi et al., 2003). Premature therapy termination often results in the loss of emotional, financial, and time investments from both clients and therapists (Masi et al., 2003).

High couple dropout rates are alarming given the barriers to treatment and correlates of relational distress. The cost and logistics of attending couple therapy alone proved to be the most frequently cited barriers in one study (Hubbard & Anderson, 2022), so the inability to complete treatment significantly compounds this issue. Clawson et al. (2018) presented a case for couple therapy to be reimbursed by insurance and reported that almost a third of married couples in the United States are estimated to be distressed, which is a risk factor for poor physical health (e.g., chronic fatigue, pain, and hypertension; lower immune functioning; diabetes; cardiovascular disorders), mental health (e.g., depressive and anxiety symptoms), work productivity, and higher healthcare utilization. Given the difficulty of getting in the door and the serious risks of not addressing relational distress, clinicians must do better to help their couples stay in therapy.

Research examining the factors leading to premature termination has shown inconsistent results. Much of this research has been conducted on individual therapy, but several important risk factors have been identified: client, couple, treatment, therapist, and clinic. In general, patients with less money, less education, more distress both personally and as a couple, more conflict, and more external pressure to attend therapy have a higher risk of dropping out (S. R.

Anderson et al., 2019; Swift & Greenberg, 2012). Additionally, therapist, treatment, and clinic factors such as less therapist experience/training, less of an ability to create a therapeutic alliance, no estimated definite number of sessions set for treatment, and operating out of a university-based training clinic have been associated with premature termination (Roos & Werbart, 2013; Swift & Greenberg, 2012). Unfortunately, many of the couple dropout studies were conducted at training facilities. Further, the use of telehealth has not been repeatedly examined related to couple dropout. The need to understand the factors related to couple therapy dropout in naturalistic settings is imperative.

The effect of these factors on premature termination can be understood using Self-Determination Theory's (SDT) mini-theory, Cognitive Evaluation Theory (CET). SDT posits that autonomously chosen behaviors—those that are considered, chosen, and congruent with one's values—are more likely to be maintained (Ryan & Deci, 2017). Behavior driven by internal motivation is associated with longer-term commitment and higher satisfaction with the behavior (Ntoumanis & Moller, 2023). Internally motivated therapy attendance should lead to more attendance and better outcomes. CET clarifies how external incentives (i.e., rewards and punishments) can be used to catalyze internal motivation.

Using this framework, a Midwest relationship therapy clinic implemented the Relationship Investment Plan (RIP)[1] that allows couples to invest in therapy upfront and receive a reduced rate on sessions within a given timeframe. This structure scaffolds self-determined motivation by creating an early incentive for clients to more deeply consider the possible benefits of couple therapy and their commitment to the process. The purpose of this dissertation is to

[1] A special thanks to Dr. Jonathan Swinton, who had the original idea for the Relationship Investment Plan.

examine the effect of the RIP on therapy retention and to explore the impact of other covariates in a naturalistic, outpatient therapy clinic.

Chapter 2 - Literature Review

Premature Termination in Couple Therapy

Premature termination, or dropout, has been operationalized in many ways. In one of the most recent meta-analyses on therapy dropout, Swift and Greenberg (2012) found that authors operationalized dropout as a failure to complete the treatment protocol, a subjective therapist judgment, attending less than a set number of sessions, or when patients just stopped attending altogether. They also cited Hatchett and Park (2003), who suggest dropout be operationalized as therapy discontinuance before evidencing reliable change into the normative range on an outcome measure. Additionally, Roos and Werbart (2013) review on dropout suggested that clients who drop out after the intake should not be included in these analyses as they did not ever "start" therapy to begin with. Each of these operationalizations had varying rates of dropout associated with them, with therapist judgment at the highest (37.6%) and a set number of sessions being the lowest (18.3%; Swift & Greenberg, 2012) for primarily individual case types. The definitional differences may explain, at least in part, some of the contradictory findings in research on premature termination.

Factors Influencing Premature Termination

Research on factors influencing premature termination has been mixed. Much of this scholarship has not been on couple therapy; in fact, the meta-analysis by Swift and Greenberg (2012) excluded studies using only family- or couple-based interventions. Many studies conducted on couple dropout have used university-based training or veteran samples (S. R. Anderson et al., 2019; D'Agostino, 2019; Doss et al., 2011; Johnson, 2020; Knizley, 2016; Lybbert, 2022; Willis et al., 2021), so our knowledge on this topic for outpatient couple therapy clinic clients is limited. However, it is helpful to examine correlates of dropout in any modality

as they may also have an impact on couple therapy. These risk factors fall at the client, couple, treatment, therapist, and clinic levels.

At the client level, clients who feel pressured to attend therapy (S. R. Anderson et al., 2019), are younger and less educated (Swift & Greenberg, 2012), a part of an ethnic or racial minority group (although results have varied widely for this; Mitchell et al., 2022), have higher symptom distress (Hall et al., 2018; Tarescavage et al., 2015), or who struggle with a personality or eating disorder (Swift & Greenberg, 2012) are more likely to drop out. Couples who have less agreement on their presenting issues or higher levels of distress, aggression, or conflict in co-parenting were also more likely to terminate prematurely (S. R. Anderson et al., 2019; Biesen & Doss, 2013; Mitchell et al., 2022). In addition, treatment that was not time-limited, frequent enough, or manualized was also associated with a higher risk of dropout (Roos & Werbart, 2013; Swift & Greenberg, 2012).

Therapists with less experience, less training, who cancel sessions, or who struggle to facilitate a stronger therapeutic alliance may be at higher risk of losing clients (to dropout, not death—you morbid pedant; S. R. Anderson et al., 2019; Roos & Werbart, 2013; Swift & Greenberg, 2012); indeed, one study at a university training clinic found that 9.4% of the variance in couple dropout may be attributable to the therapist (Willis et al., 2021). Factors specific to the training clinic—or the inexperience of the therapists themselves—may explain why those at these university-based clinics tend to have higher dropout rates (Swift & Greenberg, 2012). Given that much of the research on therapist factors affecting couple dropout has been done at training clinics, null findings related to therapist experience must be interpreted with sandbags of consternation (S. R. Anderson et al., 2019).

Couple Therapy and Financial Concerns

Finances are a special consideration in couple therapy. Generally speaking, couple therapy is not directly reimbursable by insurance in the United States (see Clawson et al., 2018). Treatment for couples is often paid for out of pocket and is a barrier for many (Hubbard & Anderson, 2022). Three theses using data from Auburn University's MFT training clinic found mixed results related to income and therapy fees for couples: one found that dropout was associated with a higher percentage of weekly income paid as therapy fees (Knizley, 2016), and another found no such association, citing changes to clinic policies in response to the previous study as the possible explanation (Johnson, 2020). The third found no association between income or intake fee and number of sessions attended (D'Agostino, 2019). These results are a microcosm of the literature on couple dropout broadly: even three theses chaired by the same major professor with data from the same clinic have contradictory findings. Given Swift and Greenberg (2012) contrary results and that training clinic environments are substantially different from outpatient clinics in fee structure, clinical expertise, and therapist turnover, this association warrants further examination in a naturalistic outpatient setting.

Telehealth

The onset of COVID-19 prompted many clinicians to resume their practice virtually. Telehealth sessions have been embraced by many, with some scholars claiming similar couple therapy outcomes to in-person sessions (Bradford et al., 2023), although these findings also showed lower rates of therapeutic alliance growth for virtual therapy. Hardy et al. (2021) highlighted client telehealth advantages such as increased access to care, less time taken out of a day (e.g., travel), and *some* flexibility for location as well as therapist advantages such as lower overhead costs (e.g., office space), flexibility, and ease of recording (for trainees, depending on

software). They suggested that disadvantages sometimes include less client privacy surrounding their home life, more distractions, low technological know-how, clinician screen fatigue, and technology problems—not to mention ethical concerns with confidentiality, emergencies, and boundaries. Supporting these findings, one study found that telehealth sessions primarily for individual case types had 33% lower odds of being missed (Cuthbert et al., 2022). This new widespread phenomenon warrants further study in couple therapy, especially as its unique format may show associations with dropout.

Given the state of the literature on premature termination for couples, it is imperative that research be conducted to examine these factors among couples in naturalistic outpatient settings and include modern covariates such as telehealth. Further, it is pressing for clinicians to find ways to help incentivize therapy retention in ways that do not undermine the therapeutic process. As such, I will review the research on Cognitive Evaluation Theory to explore how such an incentive might be developed and introduce the Relationship Investment Plan.

Cognitive Evaluation Theory

Cognitive Evaluation Theory (CET), one of Self-Determination Theory's (SDT) six mini-theories, is useful in describing and predicting motivation in the context of external influences. Specifically, it "describes the processes through which social environments influence (i.e., facilitate or undermine) intrinsic motivation and, in turn, high-quality performance and well-being" (Ryan & Deci, 2017, p. 20). CET is useful in understanding how the RIP incentivizes patients without undermining their motivation for therapy. A brief overview of CET will be provided, followed by an overview of the key constructs and assumptions of CET that apply to the present study: the basic psychological needs, needs-supportive or -thwarting environments,

and motivation. These principles will then be brought together to describe how external incentives can be effectively used in this framework.

In their handbook on Self-Determination Theory, Ryan & Deci (2017) specify that CET outlines three basic forms of extrinsic events (e.g., rewards, punishments, feedback) based on their effects on motivation: informational, controlling, and amotivating. They explain that informational events specifically promote autonomy and competence and enhance an internal locus of causality. This might include developmentally appropriate, helpful feedback (e.g., competence support) or small rewards that acknowledge/signify competence. Furthermore, controlling events attempt to alter how people think, feel, or act and engender an external locus of causality. These might include performance-, completion-, or engagement-contingent rewards such as money, a prize, or a punishment. Last, the amotivating aspect undermines all motivation through an individual's incompetence or lack of value towards the activity, which could include the provision of humiliating work feedback to an individual (Ryan & Deci, 2017).

Basic Psychological Needs

CET rests upon SDT's assumption that there are three basic psychological needs: autonomy, relatedness, and competence. These three needs are crucial in understanding human motivation and flourishing. The contexts in which we live (e.g., work, romantic relationships, neighborhood, sociopolitical climate) influence the availability of psychological "nutrients" that contribute to our well-being when they are in plenty or our dysfunction when they are unavailable or undermined (Ryan & Deci, 2017). These needs will be described in more detail, followed by examples of needs-supportive and -thwarting environments.

Autonomy is "self-determination, assenting to or owning one's beliefs and values and the behavior that follows" (J. R. Anderson, 2020, p. 4). Oftentimes, autonomy is misconstrued as

“rugged individualism” or “separateness” which requires that one distances themselves from close others to maintain their sense of self-directedness and identity. In contrast, an autonomous individual can remain connected to their values and identity while in relationships with others. Autonomy is related to agency, where an individual feels a sense of an internal locus of control or self-authorship regarding their life and behavior.

Relatedness refers to one’s needs for belonging and intimacy (Knee & Browne, 2023). This construct is related to attachment and overlaps with Bowen’s conceptualization of togetherness (Kerr & Bowen, 1988). One key difference between relatedness and attachment, however, is that "secure attachment" is the state of having all one's psychological needs met within a needs-supportive relationship; this is formed by partners who support the autonomy and competence of their partner(s) while maintaining a sense of relatedness with them (Knee et al., 2013). Relatedness is not at odds with autonomy; one can be close to important others yet still retain their self-determination.

Last, competence is related to self-efficacy, where an individual is confident in their ability to act effectively (Ryan & Deci, 2017). The need for competence is a motivating force that engenders curiosity, self-expansion, and mastery (Ryan & Deci, 2017). This does not mean that we must always feel as if we are acting perfectly; it is the drive to do so that represents this need.

Needs Support and Thwarting Environments

The context in which external incentives might be provided is critical in understanding how they will impact motivation. Within SDT, environments are seen to have two major processes acting on an individual: needs support and needs thwarting. Each psychological need can be supported or undermined, and it is helpful to understand how that can happen.

Autonomy support refers to the general tendency of an environment (e.g., therapy, a relationship, a classroom) to scaffold the autonomous functioning and self-regulation of its members (Ryan & Deci, 2017). For example, an autonomy-supportive therapist freely offers choices and options to patients along with explanations for things to consider with each of them (see Gillison et al., 2019 for more examples of needs-supportive techniques). Autonomy plays a special role among the psychological needs; undermining autonomy also undermines one's ability to meet other needs in a self-determined way. For example, parental conditional regard subverts children's autonomy by attempting to externally control their choices, which in turn can subvert their relatedness to their parents, their competence, and overall motivation (Kanat-Maymon et al., 2023). Autonomy-thwarting environments attempt to control the thoughts, feelings, and/or behavior of people in them regardless of their wishes or values (Aelterman & Vansteenkiste, 2023). A clear example of this would be a therapist imposing their values onto a client (e.g., not to have sex before marriage), perhaps even as a condition of therapy.

Relatedness-supporting environments provide the ingredients for people to find authentic connections with one another, such as displays of warmth and responsiveness (Soenens & Vansteenkiste, 2023). Thwarting relational environments, however, create dynamics that make it difficult for individuals to connect such as when one partner (or both) gets reactive and uses distance, withdrawal, verbal aggression, and so on (see Pelletier & Rocchi, 2023 for non-relational examples). Overly competitive or toxic work environments and many academic settings are other examples of relatedness thwarting environments.

A competence-supportive environment allows individuals to be curious, to challenge themselves, and to express their talents (La Guardia et al., 2000; Ryan & Deci, 2017). In therapy, this would look like socializing clients to the therapy process, acknowledging progress, believing

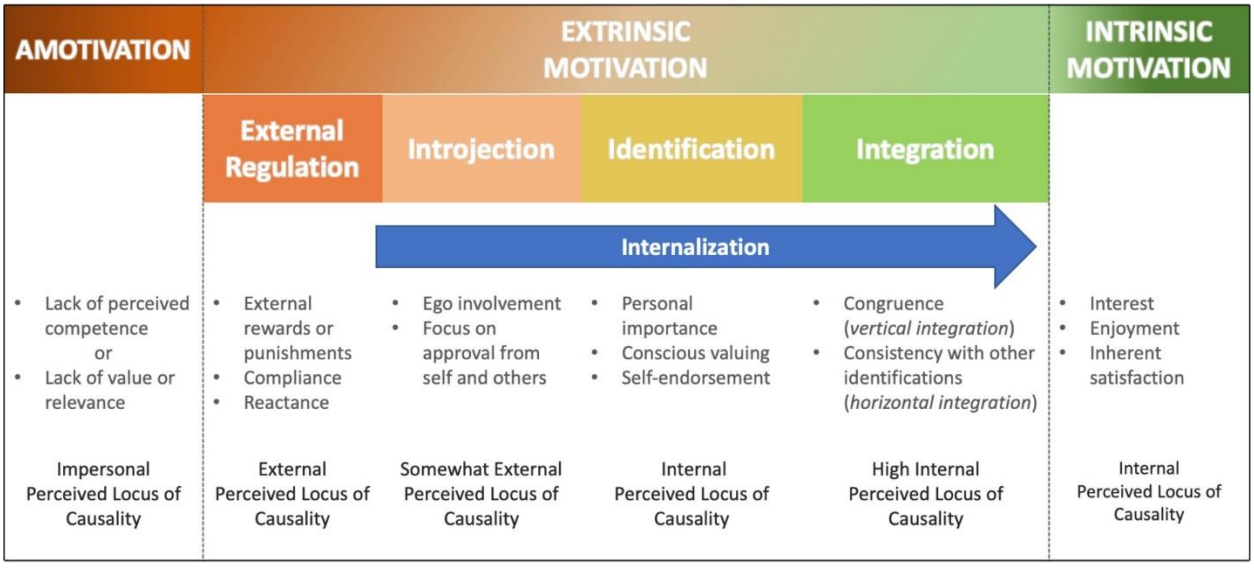
in clients, and providing structure to therapy at the level clients are at (Ntoumanis & Moller, 2023; Pelletier & Rocchi, 2023). Competence-thwarting environments exist where tasks are too difficult, criticism is rampant, and social comparisons are often used (Pelletier & Rocchi, 2023; Ryan & Deci, 2017). Therapists who outpace the developmental level of their clients are actively thwarting competence.

Motivation

Finally, the SDT conceptualization of motivation is founded on these constructs and principles. SDT posits that there are complex ways in which one can experience motivation, beyond simple intrinsic-extrinsic binaries, and thus the sources of motivation can be many. Ryan et al. (2021) provide a continuum of motivation to explain these varied sources and their plausible outcomes, as shown in Figure 1.

Figure 1

The Motivation Continuum in Self-Determination Theory



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Motivation ranges from complete amotivation to extrinsic motivation to intrinsic motivation. SDT is unique in that theorists clarify that there is a range of extrinsic motivation and that it is

not inherently “bad” due solely to the fact that it is not intrinsic. The key is to understand an individual’s level of self-determined (versus controlled) motivation rather than the source of motivation in determining whether they will experience more positive or negative outcomes as a result (Ryan & Deci, 2017). Within extrinsic motivation, our behavior can be the result of external regulation, or behavior motivated by outside rewards and punishments; introjection, or internalized ego involvement (shame or pride related to task completion) aiming for self- or other-approval; identification, or conscious value-driven behavior; and integration, or behavior that is the result of a consistent value system (Ryan & Deci, 2017). Intrinsic motivation occurs when there is an inherent interest, satisfaction, and drive to perform the activity and shows up in leisure activities such as travel, games, or reading (Ryan et al., 2021). Values are internalized from the external environment, signified by the blue arrow (see Figure 1). Generally speaking, the more internalized the motivation is, the more self-determined the behavior is and the better the psychological outcomes associated with performing that activity (Ryan & Deci, 2017).

External Incentives Scaffolding Internal Regulation

Bringing it all together, CET posits that self-determined, internalized regulation leads to the best outcomes. Therefore, any external incentive structure must be carefully situated so as not to undermine or thwart any of the basic needs and not to compromise the internal motivation and rewards the behavior brings to the actor. Research has shown that incentives are often effective for initiating new behaviors but not sustaining them (Ntoumanis & Moller, 2023). Incentives are most likely to succeed when they scaffold self-determination and are informational—or provide feedback on growth in an intrinsic, autonomy- and competence-supporting way (Ntoumanis & Moller, 2023; Ryan & Deci, 2017). In many ways, a successful incentive is a catalyzing environment for self-determined motivation rather than the fuel or energy itself.

The Relationship Investment Plan

The Relationship Investment Plan (RIP) was designed by a Midwest clinic with these principles in mind. In short, the RIP is much like a subscription plan, where patients can pay an enrollment fee for a discount on all sessions within a given timeframe. The fee varied by the length of the enrollment period (three, six, or nine months), but the discount would be the same on all sessions ($50). For example, a patient wanting to enroll in the three-month plan would pay $195 for the enrollment fee at the beginning of therapy in addition to the discounted therapy price for the first session ($75). All sessions within those three months would be at the discounted rate ($75) rather than the full rate ($125). Therefore, it was prudent for clients who planned on attending over four sessions to enroll, as the enrollment fee would "pay for itself" in discounts at four sessions.

The RIP is an external incentive structure that was designed to catalyze internalized motivation for therapy. Importantly, it avoids controlled forms of external regulation by not setting a specific number of appointments to complete or being the only form of payment plan accepted by the therapists. Patients are also allowed to enroll at any time in their therapy process and save money. It supports internalized regulation, autonomy, and competence by providing a context within which new patients can discuss the process and length of therapy and decide to commit early on to it. The question of enrollment can spark conversations between partners about their commitment to the process of therapy, deepening their attunement to their values and internalized regulation. It also incentivizes patients to attend more than the three sessions so infamously cited as the average for couples, allowing the therapist to have enough time to complete the assessment phase of therapy (often about 3 sessions) and begin treatment in earnest.

Current Study

Given this theoretical framing, my primary research question is (RQ1) does enrollment in the RIP result in longer retention in the therapy process, over and above the effects of other variables? In this study, I operationalized levels of retention as the number of post-intake therapy sessions attended. Therefore, hypothesis one (H1) was that enrollment in the RIP would result in more retention on average, controlling for other factors predicting dropout at the couple and therapist levels. The second research question (RQ2) was do the RIP's effects vary by therapist? This question was posed to explore how the RIP's effects might be different by the therapist based on possible varying modes of implementation or other therapist-varying factors such as differences in their populations of clients.

The third research question (RQ3) was how do therapist factors such as experience level influence clients' retention in therapy? These results have had mixed findings, with most (if not all) studies conducted on the topic using training clinic samples where therapist experience was limited to a small range. Therefore, I included these covariates as an exploratory analysis.

Last, the fourth research question (RQ4) was how does telehealth influence therapy retention? I asked this, in part, due to the expansion of telehealth services due to the COVID-19 pandemic. Initial research suggests that teletherapy is just as effective as in-person couples therapy (Bradford et al., 2023), but the need to understand how telehealth affects client retention is pressing, especially among couples.

Chapter 3 - Methods

Procedure and Participants

The data acquisition procedures for this study were approved by the Institutional Review Board at the author's university. The participants for this study included 532 couple cases (184 RIP, 348 control) from a dataset provided by an outpatient relationship clinic in the Midwest United States. Couples had intake dates ranging from December of 2018 to May of 2023. Most cases (393) had intake data from both partners while 139 (27%) had data from only one partner. Twelve therapists were included, with two identifying as male and ten as female. Therapists had an average of 1.89 years of experience (SD = 1.70) since beginning their post-master's clinical work, with a range from 0 to 6.82 years. Many individuals in the couples were married (71%) and identified as White (76%), followed by those identifying as Black (9%), multiracial/other (10%), and Latinx (5%). Most of the couples were in heterosexual dyads (71%) with some lesbian/gay dyads (2%) and the rest being unknown (27%). The average relationship length was 10.34 years (SD = 8.49) and ranged from 0.25 to 53 years. The average age in the sample was 38.81 years (SD = 9.69), ranging from 19 to 82. Most of the sample had at least a four-year college degree (52.27%), with those who had attended college (33.70%) following. About fourteen percent (14.03%) had never attended college.

The dataset comprised secondary, de-identified therapy intake information. Inclusion criteria for the study included being over 18, receiving couple therapy services, having at least one partner filling out intake information, having completed treatment, and having only one clinician at the practice (no transfers). Couples who received a significant discount (more than 20% of sessions unless there were very few sessions, then more than 40% of sessions) on therapy

services were excluded.[2] Cases beginning after the RIP terms were altered (the discount amount was adjusted) were excluded. Cases with more than 52 sessions were dropped, as these cases are likely outliers representing a different population of couples than those completing therapy within the average timeframe (3 to 12 months; Lebow & Snyder, 2022).

The Relationship Investment Plan was available for all clients to utilize to pay for services. Information about the RIP was posted on the clinic's website. Clients would inform their therapist that they would like to enroll in one of the plans, and therapists would bill clients. Some therapists explicitly mentioned the RIP at the beginning of treatment, while others left it to the client to bring up. Therefore, there may be some control group clients who were never aware of the RIP and may have enrolled given the opportunity.

Measures

Measures used in this study will be described below according to their hierarchical level: therapist, couple, and client.

Therapist-level variables. An id variable for the therapist was used in creating the hierarchical structure of the data.

Couple-level variables. The couple-level variable RIP enrollment status (0 = not enrolled, 1 = enrolled) was the primary treatment variable and was assigned to couples who either contained an RIP current procedural terminology (CPT) code and/or paid the enrollment fee in their accounting data. All enrollment types (3, 6, or 9 months) were lumped together. The number of post-intake sessions was acquired from the session attendance data. The count of post-

[2] Those receiving large, recurring discounts for services were likely those experiencing significant financial challenges.

intake sessions was used instead of sessions because the count distribution families used in the model assume counts begin at zero.

Post-master's degree therapist experience (in years) was included as a couple-level covariate. This was measured by subtracting the date of the first session for the couple case from the date the therapist began their post-master's degree experience. This number was converted from days to years, log-normalized, and mean-centered to allow the intercept in the final model to be meaningful. Models fit with the non-normalized variable caused heterogeneity in the residuals that was corrected through normalization.

Marital status (0 = not married, 1 = married) was originally included in the data but removed due to the overlap with relationship length. Relationship length (in years) was an open-ended response and coded numerically. This variable was log-normalized and mean-centered to assist in model estimation and to increase the interpretability of the intercept.

Couple treatment medium was dummy coded such that those who received therapy primarily via telehealth (over 85% of sessions) had a variable (0 = in person or mixed, 1 = primarily telehealth) as well as those who experienced a mix of both modalities, where 15 to 85% of sessions were over telehealth (0 = in person or telehealth, 1 = mixed). Client no-show was also included (0 = never no-showed, 1 = ever no-showed). Due to the lack of income information in the data, household full-time employment status was used instead where at least one member of the couple could have been full-time employed (0 = not full-time employed, 1 = full-time employed). Last, couple distress was assessed using the sample-reliable ($\alpha_{std} = 0.92$), four-item couple satisfaction index (Funk & Rogge, 2007), where couples with at least one individual scoring below the cutoff of 13.5 were coded as distressed (1) and those above the cutoff were coded as not distressed (0).

Analysis Plan

First, missing patterns in the data were examined. Multiple imputation was performed using predictive mean matching from the *mice* package in R (Buuren & Groothuis-Oudshoorn, 2011) to generate datasets that were median-combined to obtain an estimate. Iteration trace plots were examined as well as histograms and summary statistics for the complete data to be sure there were no concerning patterns.

Second, t-tests were run on study variables across treatment groups to determine whether there were any significant differences between them. For the next research questions, generalized linear mixed models (GLMMs) were used. Analyses using frequentist methods were attempted in the *lme4* package within R (Bates et al., 2015), but some models had trouble converging. Some sample sizes within clinicians for the control group or RIP groups were low (n=3, 4, or 5). Upon examining the distributions of the control and RIP groups, the shapes of the distributions appeared somewhat different as well. Therefore, Bayesian estimation using *brms* (Bürkner, 2018) in R was used to create more robust models for the data given smaller within-clinician samples and possibly different-shaped distributions. The *brms* package allows the estimation of Bayesian models using familiar *lm* syntax but compiling analyses in Stan (Bürkner, 2018). The sampler used was the default for Stan, a No-U-Turn Sampler (NUTS), based on Hamiltonian Monte Carlo sampling. All models were run sampling 10,000 times, discarding 5000 for burn-in across four separate chains (a total of 20,000 remaining samples).

The estimated GLMM models were evaluated for acceptance rates, parameter r-hats, dispersion, outliers, homogeneity of residuals (overall and across individual predictors), autocorrelation of samples, parameter trace plots, and marginal posterior histograms with the help of *brms* and *DHARMa* functions (Bürkner, 2018; Hartig, 2022). Model comparisons were

conducted using the Pareto-smoothed importance sampling leave-one-out cross-validation metric (LOO; using the loo package; Vehtari et al., 2023) and model averaging, where the model showing better fit using LOO, having a higher weight out of 1, and having acceptable residual features (e.g., no violation of assumptions) would be chosen.

Models were estimated with the Poisson distribution family using the log link, and if overdispersion was present, the negative binomial family was used instead. Seven models were estimated to examine the study questions and hypotheses. First, a null intercept model (fixed intercept only; Model 0) and then a two-level intercept model (random intercept only; couples nested within therapists; Model 1) were estimated. Two-level models followed, where a RIP fixed effect (Model 2), a RIP random effect (by therapist) (Model 3), several fixed couple-specific covariate effects (distress, relationship length, and household full employment; Model 4), several therapy-specific fixed covariate effects (couple no-shows and the telehealth dummy variables; Model 5), a therapist years of experience fixed effect (Model 6), and a therapist years of experience random effect (by therapist; Model 7) were iteratively added. These models were examined for any estimation issues or assumption violations as described previously.

Prior Selection

Prior selection is of utmost importance in Bayesian modeling, as it can influence model convergence, estimation, and inference. Priors generally fall into three categories: flat, mildly informative, and informative. Flat priors attempt to place equal probability density across the support of the parameter. In other words, the RIP is equally likely to have a massive positive or negative effect as it is to have no effect at all. Mildly informative priors are an attempt to distribute probability density according to the assumptions of null hypothesis testing within a more reasonable range. For example, the RIP parameter would have the mean probability density

at zero (no effect) with diminishing probability density to either side so that unreasonable, massive effects have very small probabilities. Informative priors for regression would likely have a particular value at the mean of the probability density with a suggested variance around that point. In this example, it could be that previous research suggests that the RIP has an effect associated with 50% more sessions than controls. A normal distribution might be chosen with a mean of approximately 0.4055 ($e^{0.4055} \approx 1.50$) and a smaller variance (e.g., 0.25, where $e^{0.25} \approx 1.28$).

Given that there is limited (if any) information on appropriate priors to use in my model, mildly informative priors were chosen to be used for model parameters. This was done while examining the prior predictive distribution and transformed parameter histograms to determine what hyperparameters and distributions would result in reasonable estimates. Before the shape parameter θ was predicted, a mildly informative prior based on the penalized complexity approach was used (Inverse-Gamma(0.41,0.29); see Vehtari, 2024b) rather than the default Gamma(0.01,0.01) prior. The prior for the intercept was centered on the log of the mean number of sessions and had a variance of 1, given the exponential effect the log link has (Normal(2,1)). The slope prior was Normal(0,1) to center the probability density on zero with decreases so that values above a 1000% effect were very improbable (<0.011). The random effects standard deviations were given zero-bounded $\text{Normal}_{+}(0,1)$ priors.

Chapter 4 - Results

Descriptive results and correlations are shown in Table 1 and Table 2, respectively. Three variables had missingness at random under 2.2% each that was imputed for these analyses. T-tests were run on study variables, and only the count of post-intake sessions had a significant difference (see Table 1), where those who were enrolled in the RIP attended more sessions on average (RIP: mean = 15.80, SD = 11.70; control: mean = 7.44, SD = 8.21).

Model Selection

The models were first estimated using the Poisson distribution family with the log link, but overdispersion was present due to more variability in the number of sessions than would be expected by that distribution. Therefore, the negative binomial distribution family was used with the log link, which demonstrated no significant levels of over- or underdispersion in the null model. Models 0-3 were estimated. Divergent transitions in the NUTS sampling occurred for Model 3, indicating that there could be sampling issues of the posterior distribution. The adapt_delta was increased to 0.99 and these divergences disappeared. However, residual heterogeneity was observed across RIP groups as well as slight underdispersion in both models. This issue was present and compounded in the rest of the models, so an adjustment was made starting at Model 2 where the negative binomial shape parameter, θ, was modeled to be predicted by the RIP enrollment variable. This resolved the heterogeneity across RIP groups, and the slight underdispersion (which became significant in later models) disappeared. The rest of the models were estimated (Models 4-7). When examining the models, the random slopes for the intercept and RIP seemed not to have much variability. Therefore, two additional models were added: one with a fixed RIP effect (Model 8) and one with a fixed intercept and RIP effect (Model 9).

Table 1

Model Descriptive Statistics

Variable	Mean	SD	Min	Max	Skew	Kurtosis	Missing	RIP Difference
Count of Post-Intake Sessions	10.33	10.34	0.00	51.00	1.56	2.19	0%	t(281.01)= -8.62, p < .001
RIP Enrollment	0.35	0.48	0.00	1.00	0.65	-1.59	0%	--
Distressed	0.85	0.36	0.00	1.00	-1.91	1.65	2.0%	t(348.17)= 0.90, p=0.37
Relationship Length[a]	1.97	0.94	-1.39	3.97	-0.63	0.40	2.2%	t(410.49)= 0.90, p=0.81
Household Full Employment	0.89	0.31	0.00	1.00	-2.50	4.27	2.0%	t(421.48)= -1.24, p=0.22
Therapy No Show	0.06	0.24	0.00	1.00	3.69	11.63	0%	t(305.14)= -1.40, p=0.16
Telehealth (Only)	0.65	0.48	0.00	1.00	-0.64	-1.60	0%	t(390.57)= -1.75, p=0.08
Telehealth (Mixed)	0.10	0.30	0.00	1.00	2.63	4.93	0%	t(346.88)= -0.68, p=0.50
Therapist Experience[a]	-0.01	1.48	-6.91	1.92	-1.32	2.52	0%	t(376.32)= 0.89, p=0.38

Note. Values represent the post-imputation dataset, except for missing.

[a]Variable was log-normalized. In the analyses it was also mean-centered.

Table 2

Model Correlations

	1	2	3	4	5	6	7	8
1. Count of Post-Intake Sessions	--							
2. RIP Enrollment	0.38***	--						
3. Distressed	0.01	-0.04	--					
4. Relationship Length[a]	0.12**	0.01	0.11*	--				
5. Household Full Employment	0.02	0.05	-0.03	-0.01	--			
6. Therapy No Show	0.06	0.07	0.09*	-0.07	-0.11**	--		
7. Telehealth (Only)	-0.06	0.07	-0.06	-0.03	-0.01	0.02	--	
8. Telehealth (Mixed)	0.13**	0.03	0.02	0.05	0.02	-0.01	-0.46***	--
9. Therapist Experience[a]	0.01	-0.04	-0.05	0.16***	-0.04	-0.04	0.06	0.11**

Note. Values represent the post-imputation dataset.

[a]Variable was log-normalized. In the analyses it was also mean-centered.

All models had parameter r-hat values of 1.00 with no issues of divergent transitions, significant over- or underdispersion, significant outliers, significant overall residual heterogeneity, or sampling (i.e., acceptance rate, non-diminishing autocorrelation, poor sampling trace plots, unexpected marginal histograms). See Appendix A: Bayesian Model Diagnostics for more details.

Table 3

Model Comparisons

Model	Weight	ELPD Diff	SE Diff	ELPD LOO	ELPD LOO SE
Model 8	0.558	0.00	0.00	-1747.73	23.69
Model 7	0.034	-0.79	1.42	-1748.52	23.95
Model 5	0.113	-1.04	2.33	-1748.77	23.88
Model 4	0.000	-1.49	2.80	-1749.23	23.38
Model 9	0.000	-1.76	1.70	-1749.49	23.59
Model 6	0.000	-2.09	2.31	-1749.82	23.94
Model 2	0.276	-2.56	3.98	-1750.29	23.12
Model 3	0.000	-3.32	4.11	-1751.06	23.35
Model 0	0.019	-52.67	10.29	-1800.40	22.07
Model 1	0.000	-52.85	10.12	-1800.58	22.23

Note. Models are ordered from best to worst according to the ELPD LOO.

Models were compared based on the LOO criterion and model weights (see Table 3). While only the intercept models had ELPD differences greater than 4 (Vehtari, 2024a), the model stacking weights helped to discern which models performed best given the data. Model 8 was assigned the most weight, followed by Models 2 and 5. Model 2 contained only the fixed RIP effect, and given its large multiplicative effect in the final model (see **Error! Reference s ource not found.**), it is not surprising that some of the data were best explained using this model.

Model 5 had all variables except for therapist experience, which had probable effects for only some therapists. Model 8 was chosen as the best model given that it had the most weight assigned to it, included the fixed RIP effect as in Model 2, and was able to model the data for therapists who did have a significant experience effect.

Table 4

GLMM Negative Binomial Results Predicting the Count of Post-Intake Sessions

	Model Eight				
	Estimate	Error	95% CI	Prob	EXP
Population Effects					
Couple Level					
Intercept	2.01	0.20	[1.62, 2.39]	--	7.43
RIP Enrollment	0.75	0.08	[0.59, 0.92]	>0.99	2.12
Couple Distress	0.00	0.11	[-0.21, 0.22]	0.51	1.00
Relationship Length[a]	0.14	0.05	[0.05, 0.23]	>0.99	1.15
Household Full Employment	-0.06	0.13	[-0.33, 0.19]	0.68	0.94
Therapy No Show	0.17	0.16	[-0.13, 0.49]	0.86	1.19
Telehealth (Only)[b]	-0.02	0.11	[-0.24, 0.21]	0.56	0.98
Telehealth (Mixed)[b]	0.24	0.15	[-0.07, 0.53]	0.94	1.27
Therapist Experience[a]	0.01	0.06	[-0.12, 0.13]	0.54	1.01
Random Effect Variances					
Therapist Level					
Intercept (SD)	0.18	0.11	[0.01, 0.42]	>0.99	--
Therapist Experience (SD)	0.13	0.08	[0.01, 0.31]	>0.99	--
Intercept & Therapist Experience (COR)	-0.51	0.47	[-0.99, 0.73]	0.85	--
Shape Effects					
Intercept (θ)	0.00	0.09	[-0.17, 0.18]	0.52	1.00
RIP Enrollment (θ)	0.82	0.15	[0.52, 1.12]	>0.99	2.27

Note. Please note that *estimate* represents the expectation of the marginal posterior distributions for these estimates, and that *error* represents the standard deviation of this distribution. Additionally, *CI* represents the credible interval, not confidence interval. *Prob* represents the probability (out of 1.00) that the estimate has an effect, and *EXP* is the exponentiated estimate. Shape effects are the fixed effects predicting θ.

[a]Variable was log-normalized and grand-mean centered.

[b]Reference group is in-person therapy

RQ1 and RQ2: Does RIP Enrollment have an Effect? Does it Vary by Therapist?

The results for Model 8 suggest that the RIP had a highly probable (>0.99) effect on the number of post-intake sessions. Couples who were enrolled in the RIP had 2.12 times more sessions on average than those in the control group, controlling for the other variables in the study. Therefore, H1 was supported. Based on the model selection process, RIP was found to have a fixed, not random, effect. Therefore, the effect of RIP enrollment in this study was not found to significantly vary by therapist.

RQ3: Do Therapist Factors Influence Couple Retention?

The results demonstrated that therapist factors may have clinician-varying impacts on couple retention. First, there were clinician-level differences in the average number of post-intake sessions attended (see Table 5). Averages ranged from 6.10 to 9.25 sessions. While clinician years of experience in **Error! Reference source not found.** did not have a highly p robable effect (0.54), the random slopes for the effect varied in probability from 0.51 to 0.92 (see Table 5). Two clinicians in particular (3 and 12) had more probable effects, but in opposite directions; a one-unit increase in clinician 3's experience was associated with a 17% increase in the number of post-intake sessions on average, controlling for the other variables. A one-unit increase in clinician 12's experience, however, was associated with a 12% decrease in the number of post-intake sessions on average, controlling for the other variables. Additionally, while the correlation between the therapist random effects had a higher probability (0.85), the large standard error and credible interval suggest that this result may be negative, but likely close to null.

Table 5

GLMM Negative Binomial Random Slope Total Effects Predicting the Count of Post-Intake Sessions

	Intercept Slopes					Clinician Experience Slopes[a]				
Clinician	Estimate	Error	95% CI	Prob	EXP	Estimate	Error	95% CI	Prob	EXP
1	2.05	0.20	[1.66, 2.45]	--	7.80	-0.04	0.06	[-0.17, 0.06]	0.77	0.96
2	2.10	0.27	[1.58, 2.65]	--	8.16	0.03	0.15	[-0.27, 0.33]	0.60	1.03
3	1.81	0.26	[1.29, 2.29]	--	6.10	0.16	0.12	[-0.04, 0.40]	0.92	1.17
4	2.00	0.20	[1.61, 2.39]	--	7.38	0.02	0.06	[-0.10, 0.14]	0.62	1.02
5	1.95	0.25	[1.44, 2.43]	--	7.04	0.02	0.14	[-0.28, 0.32]	0.55	1.02
6	2.06	0.22	[1.63, 2.49]	--	7.85	-0.04	0.08	[-0.22, 0.10]	0.70	0.96
7	2.04	0.21	[1.63, 2.44]	--	7.67	-0.04	0.06	[-0.16, 0.07]	0.72	0.96
8	1.91	0.27	[1.34, 2.40]	--	6.75	0.03	0.16	[-0.28, 0.38]	0.58	1.03
9	1.99	0.20	[1.60, 2.38]	--	7.33	0.03	0.06	[-0.09, 0.17]	0.70	1.03
10	1.93	0.26	[1.38, 2.40]	--	6.88	0.03	0.14	[-0.21, 0.36]	0.57	1.03
11	2.02	0.26	[1.48, 2.53]	--	7.50	0.00	0.13	[-0.26, 0.27]	0.51	1.00
12	2.22	0.24	[1.78, 2.71]	--	9.25	-0.13	0.14	[-0.47, 0.08]	0.82	0.88

Note. Please note that *estimate* represents the expectation of the marginal posterior distributions for these estimates, and that *error* represents the standard deviation of this distribution. Additionally, *CI* represents the credible interval, not confidence interval. *Prob* represents the probability (out of 1.00) that the estimate has an effect, and *EXP* is the exponentiated estimate.

[a]Variable was log-normalized and grand-mean centered.

RQ4: How does Telehealth Influence Couple Retention?

These findings suggested that telehealth may have an impact on the number of post-intake sessions. Compared to being in-person only, telehealth-only couples were not any different (prob = 0.56), while mixed (telehealth and in-person) couples were likely to have 27% more sessions on average than in-person-only couples (prob = 0.94), controlling for the other variables in the model.

Control Variables

The control variables in this study also produced interesting results. Among the couples in this study, neither couple distress (prob = 0.51) nor household full employment (prob = 0.68) had very probable effects. In contrast, relationship length (prob > 0.99) and ever having a therapy no-show (prob = 0.86) had somewhat probable effects. A one-unit increase in relationship length was associated with 15% more sessions, and having ever no-showed was associated with 19% more sessions.[3]

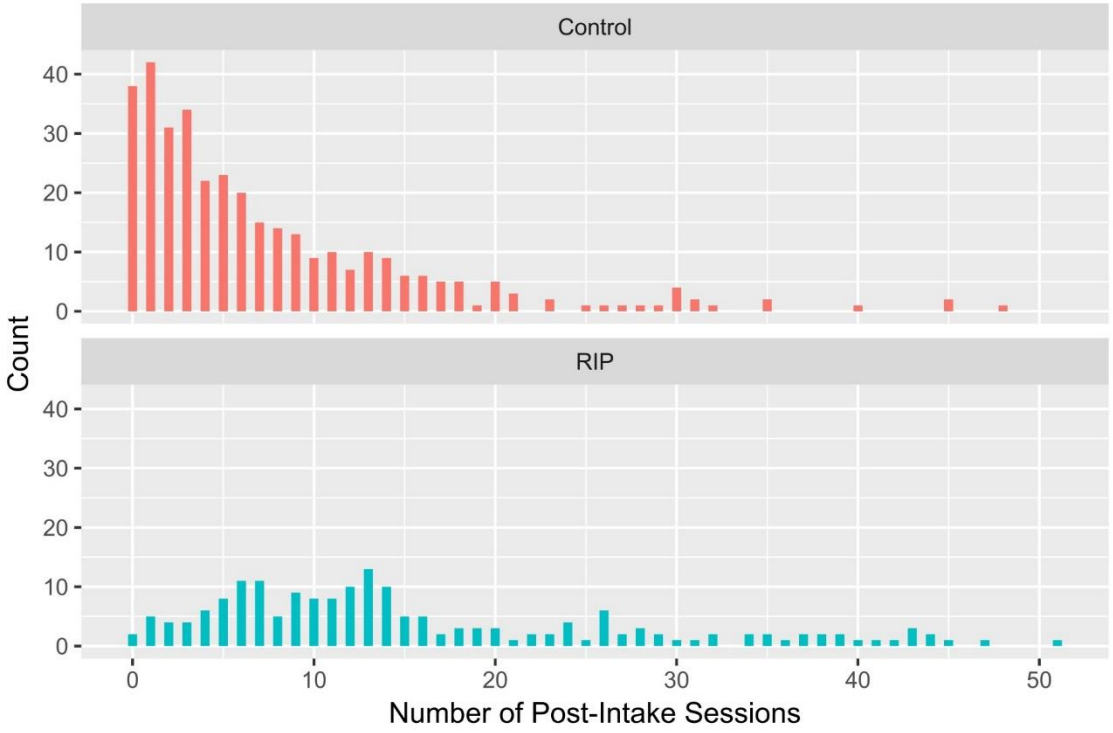
Distribution Shape

The model predicting the negative binomial distribution's shape produced interesting results as well. Those in the control group and RIP groups had different shape parameters (control: $\theta = 1$, RIP: $\theta = 2.27$). To assist with interpretability, Figure 2 displays the counts for the control and RIP groups separately; the different shapes and spread of the distributions are, in part, what this difference reflects.

[3] This should likely be interpreted in reverse: the more sessions couples had, the more opportunities they had to no-show. See the discussion section for more information.

Figure 2

Comparison of Control and RIP Counts



Chapter 5 - Discussion

This study examined the efficacy of the Relationship Investment Plan (RIP) in promoting retention in couple therapy. Historically, couples have had the highest rates of dropout (Masi et al., 2003), which is concerning given the added costs often associated with unreimbursed therapy. The RIP was developed to catalyze an internalization of commitment to the therapy process through the lens of Self-Determination Theory's Cognitive Evaluation Theory. One of the major strengths of this study is that it was conducted on outpatient therapy clients in a naturalistic setting. Much of the research done on couples in therapy occurs in university training clinics, population-specific clinics (veterans), or among those with a business agenda (e.g., Gottman et al., 2020).

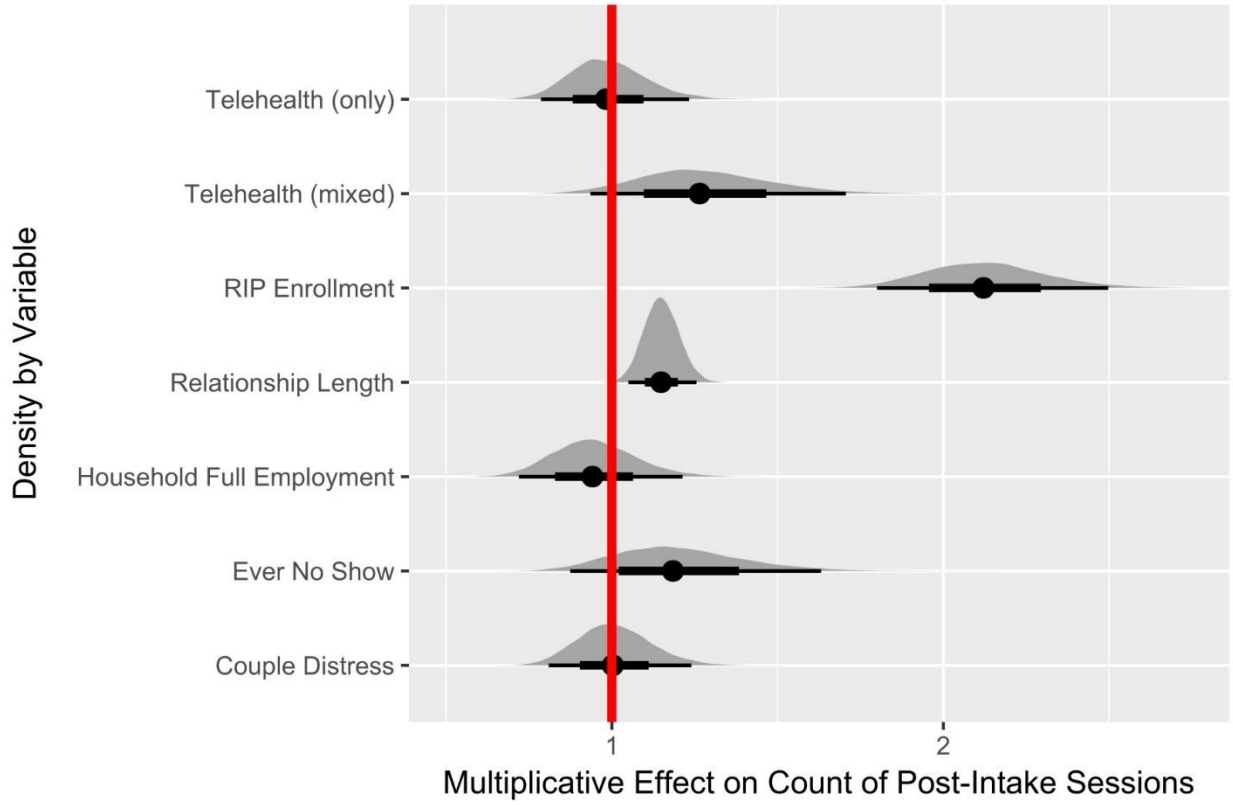
RQ1 and RQ2: Does RIP Enrollment have an Effect? Does it Vary by Therapist?

The primary finding of this study was that, in support of H1, the RIP was associated with more than twice (2.12) the number of sessions for couples on average, controlling for other variables (see Figure 3). As shown in Figure 4, couples enrolled in the RIP tended to attend more sessions than their counterparts. The count of sessions varied by therapist, but not the effect of the RIP. The shape parameter varied across these groups, however, indicating that there may not only be mean differences but other (e.g., variance, skewness, etc.) differences between these groups. The autonomy-supportive framework of the Relationship Investment Plan likely helped to scaffold the motivation of clients to commit more to therapy (Ryan & Deci, 2017). As scholars have pointed out, client motivation is a critical aspect of treatment—and a lack of commitment to the therapy process can lead to dropout (D'Aniello et al., 2019; Davis et al., 2012). These results indicate that a clinic-controlled factor, the offering of an investment program, could help to

catalyze this motivation. In addition to this, the discount received for services supports the autonomy of the clients in enabling them to acquire needed help with less of a financial

Figure 3

Multiplicative Effects of Fixed Slopes on Post-Intake Session Counts by Therapist



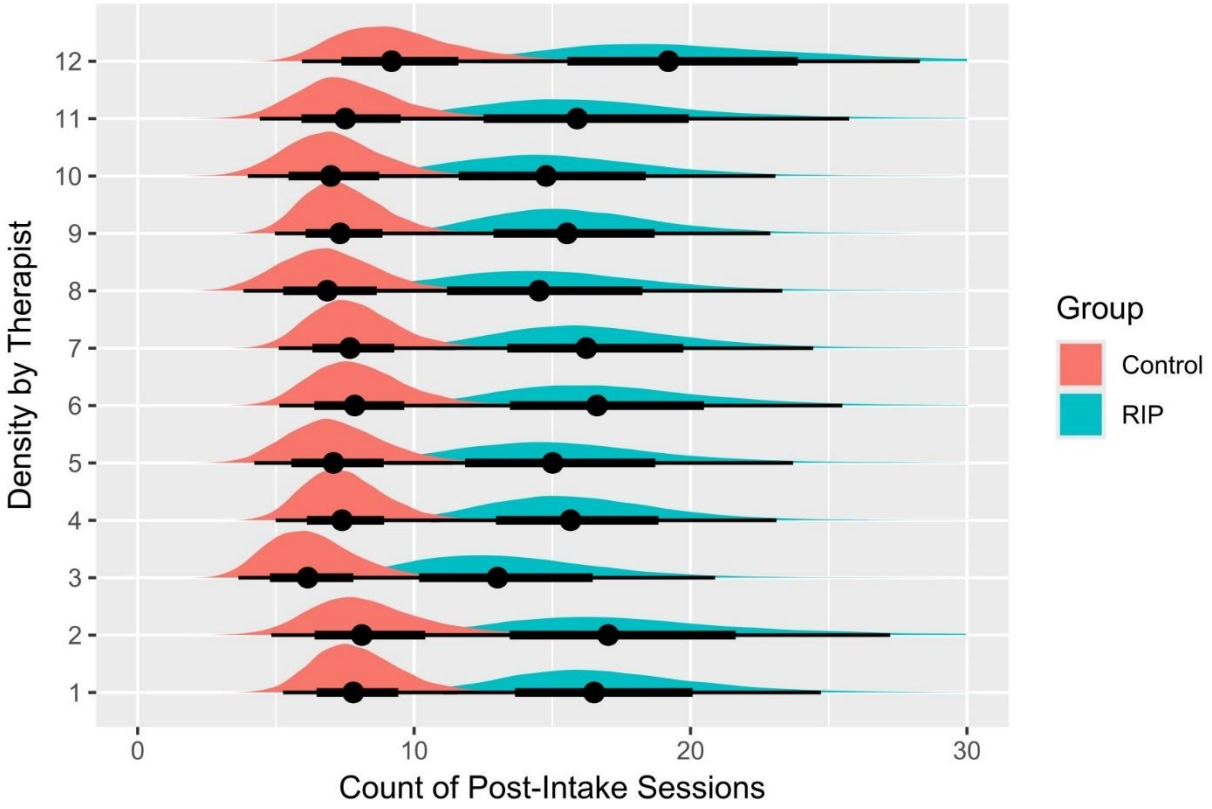
Note. Values close to 1 have no effect (multiplying the count of post-intake sessions by 1 is the count of post-intake sessions). Relationship length (in years) was log-normalized and centered.

burden. The way this plan is set up gives clients the ability to obtain a discount on sessions without committing to a minimum number of them. This avoids the pitfalls of controlling and amotivating reward systems by not making therapy attendance about meeting a minimum requirement to get one's money's worth. In fact, Figure 4 highlights that those in the control group tended to terminate therapy before the average treatment duration for couple therapy (assuming weekly sessions, around 12; Roddy et al., 2020) while those in the RIP tended to fall

slightly above that range. Further examination of the figure also supports the notion that, on average, couples are not simply waiting for their enrollment fee to be "reimbursed" at the fourth session and then dropping out.

Figure 4

Comparison of Control and RIP Post-Intake Session Counts by Therapist



Note. Note that the count of post-intake sessions is based on the intercept, which is for in-person, never no-showing, not fully employed, not distressed couples at the average relationship length and clinician experience.

RQ3: Do Therapist Factors Influence Couple Retention?

Previous research on the influence of therapist experience on couples has been conducted in university training clinics (S. R. Anderson et al., 2019; Willis et al., 2021), where the population of therapists and the environment itself is vastly different than a natural setting. In this study, two therapist factors were shown to have effects: unspecified random slope effects on

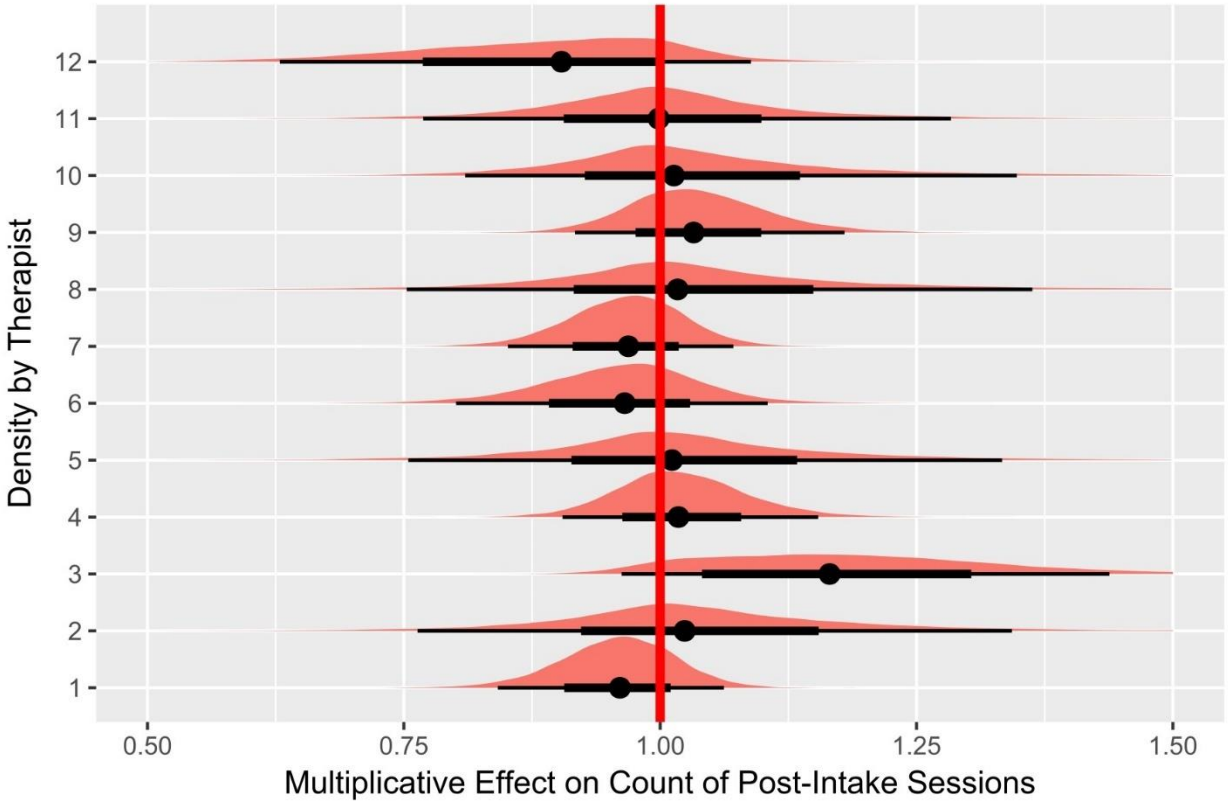
the intercepts and clinician experience. The random slope effects for the intercept were not surprising (see the red control distributions by therapist in Figure 4). While many of the clinicians use similar modalities at the clinic, the implementation of those modalities may require different lengths of treatment. There may also be average group differences among cases seen by the therapists, as each therapist specializes in slightly different client populations (e.g., some specialize in geriatric patients, while others specialize in infidelity or premarital counseling), which could affect treatment length. Last—and certainly not least—some of the therapists in the sample may be more effective than others on average (an uncomfortable but not uncommon reality; Wampold & Owen, 2021), leading to differences in their couples' retention in therapy. More research is needed to examine those possible effects.

In contrast to previous findings (S. R. Anderson et al., 2019; Willis et al., 2021), therapist experience was found to have therapist-specific effects on the number of post-intake sessions (see Figure 5). Some explanations for this difference could be the treatment of therapist experience as a random, not fixed, effect, the operationalization of experience in years and not simply degree level (Willis et al., 2021), or the use of a non-university setting. Owen et al. (2014) found that therapists' experience working with couples had a significant, positive fixed effect on client outcomes. The measure of experience in this study was general post-masters experience, not with couples only. Some of the variation in its effects may be attributable to the variation in the *type* of experience had by therapists; some may have had more couples-specific therapy experience than others. Experience on its own has not consistently proven to increase therapist efficacy (see Tracey et al., 2024).

As shown in**Error! Not a valid bookmark self-reference.**, many of the therapists did not have a significant association between their experience and the number of sessions, while two (therapists 12 and 3) did, on

Figure 5

Multiplicative Effect of Clinician Experience on Post-Intake Session Counts by Therapist



Note. Values close to 1 have no effect (multiplying the count of post-intake sessions by 1 is the count of post-intake sessions).

average. For therapist 3, more experience was associated with more sessions. For therapist 12, more experience was associated with fewer sessions. This can be interpreted in several ways. For example, therapist 12 may be trending towards fewer sessions over time because they are becoming more effective in their treatment so longer therapy is not needed. On the other hand, it might also indicate a difficulty in retaining clients due to factors such as burnout. The reverse

could be true with therapist 3, where more experience was associated with longer client retention due to increased abilities. There may also be varied effects for therapists who are just starting their post-masters experience and determining which clients they would like to work with, so their client population could vary at the same time as their therapeutic efficacy. Another consideration is that experience level and time both monotonically increased, so associations between the two may reflect the fact that couples with higher numbers of sessions (e.g., 30-40) cannot exist for therapists without at least that much experience. All in all, therapist experience is a complicated issue and warrants further attention in the literature. Future research should consider developing and including objective measures of therapist ability to examine the effect of ability on outcomes, not only the passage of time.

RQ4: How does Telehealth Influence Couple Retention?

The use of telehealth did seem to have an impact on the number of post-intake sessions. While those who were in-person or fully online did not differ much from one another, those with a mix of both delivery formats were likely to have 27% (or about 2 for controls, 4.25 for RIP enrollees) more sessions on average, holding other variables constant (see Figure 3). Most likely, the mixed therapy format could increase client retention as telehealth sessions have been shown to have lower odds of being missed, and in-person therapy is associated with a higher therapeutic alliance (Bradford et al., 2023; Cuthbert et al., 2022). More research should investigate these effects, including the impact of COVID-19, when teletherapy was the only available format of therapy for many.

Other Findings

It is not surprising that couples who have been in relationships longer tend to attend more sessions. It could be that these couples have more at stake in terms of loss with relationship

dissolution (e.g., financial resources, children, etc.) or that they have more engrained couple patterns between them that take longer to escape and modify. Additionally, it could be that those who have been in longer relationships are older and have more financial security than younger couples; longer engagement in therapy could be influenced by lower perceived financial strain. Longitudinal studies including measures of couple dynamics and financial strain could be used to more fully examine these associations.

The finding that couples who no-show therapists tend to attend more sessions should be interpreted with hesitancy. It is not implausible that the relationship between not showing up for sessions and the number of sessions should be reversed; couples who attend more therapy sessions may have a higher probability of not showing up for one. This finding should stimulate more research into the directionality and specifics of the relationship at hand.

The null findings surrounding couple distress and household full employment were somewhat surprising. Baseline couple distress has been shown as a moderator with the level of gains in therapy (Roddy et al., 2020). It could be that the operationalization of distress as a state couples are in or not is too broad to discern any impact. Additionally, other operationalizations of couple distress using measures of behavioral reactivity or communication conflict may more accurately measure this in future studies. This is an area of further exploration.

In addition, household full employment acted as a proxy variable for income. Its null association with retention could indicate a true null effect; something that has been shown in couple therapy outcome studies before, albeit low-income populations are still underrepresented (Doss et al., 2022). More likely, the operationalization of the impact of income as full-employment status may not assess the level of income or felt financial pressure couples

experience well enough to show up in the results. Future studies should use more precise measures of income to examine its possible effects on therapy outcomes.

Limitations

The results from this study are broad patterns as observed in therapy data. As such, they are only likely generalizable to couples' clinics in the Midwest, with a mostly White, heterosexual, and middle- to upper-class client base. This study also lacked randomization to treatment groups, and it contained only a passive control group. The RIP was not uniformly presented to every client, which impacted group randomization. Active control groups (e.g., alternative incentives) and randomization would provide evidence for causality in future studies. Additionally, RIP enrollment may serve as a proxy variable for client commitment to therapy, where those who were more committed to the process already were more willing to pay up front than those who were not. Future research should measure this directly to determine what the effects of the RIP are versus other possible proxy variables. Other unmeasured client-specific covariates such as socioeconomic status could also influence therapy longevity and should be measured in the future. Further, most of the data were cross-sectional and did not examine these associations over time. In addition, four therapists had small sample sizes in either the control group or RIP group; it could be that there is more variability in implementation that will be captured with a larger sample size. Last, the outcome variable of this study should not be confused with therapy success or progress; some couples can improve after several sessions, while others may take years. Future research should use outcomes other than the number of sessions to test this.

Clinical implications

This paper highlights the potential efficacy of programs like the Relationship Investment Plan. There is evidence that the RIP may double the average retention of couples in therapy, so practices might consider implementing a similar structure. At the clinic in the study, the average number of RIP post-intake sessions across clinicians was 15.75; this means that couples were likely attending at least the average number of sessions of randomized, controlled trials (assuming weekly sessions, around 12; Roddy et al., 2020). Given this, it is more likely that the couples in the RIP group attended sufficient sessions to receive the needed "dose" of therapy to see improvements than those in the control group (with an average of 7.43 post-intake sessions across clinicians). Therefore, it is possible that those in the RIP experience better clinical outcomes than controls, although this must be confirmed by future research.

Another consideration for clinicians is that the RIP could result in more income. RIP couples tend to stay in therapy longer and resultingly pay more overall than their counterparts. Specifically, control group couples who attended one intake and then 7.43 weekly sessions at $125/session would pay about $1054 total, whereas RIP enrollees who attended an intake and then 15.75 weekly sessions at $75/session would pay about $1529 total (if they used the $195 three-month plan and accounting for an average of 1.40 subscriptions to the plan per case). This means that clinicians could make an extra $475 per couple. This can be particularly beneficial to clinicians building a caseload or having a shorter waiting list. Clinicians starting the licensure process could also benefit from using the RIP, as having couple cases remain in therapy longer provides opportunities for gaining clinical experience throughout the entire treatment process, not just the beginning. In addition, the cost of obtaining clients (e.g., marketing) could be reduced due to a lower number of clients needed to fill spots caused by dropout or termination.

Clients experiencing greater benefits from therapy (as the RIP couples might) may refer their family or friends to clinicians, further reducing the need for additional marketing.

Depending on the geographic location and nature of the practice, however, implementing the RIP could come at a cost to clinicians. For example, a RIP couple engaging in 12 weeks of weekly therapy on the three-month plan would pay a total of $1,095 compared to $1,500 for controls over the same timeframe. In this situation, clinicians would lose $405 of income on the RIP case. For clinicians with a long waiting list, offering the RIP could mean less average income if filling up availability is not an issue. Clinicians should examine the characteristics of their practice and geographic location to determine the opportunity cost of using (or not using) the RIP.

Regardless of monetary compensation, self-determination theory would add that other aspects of clinical work, such as self-perceived efficacy and competence, are also crucial to clinician flourishing (Ryan & Deci, 2017). This could be undermined when couples do not stay long enough in therapy to experience change. Feelings of incompetence and inefficacy contribute to clinician burnout (Lee et al., 2007; McCormack et al., 2018), which can negatively impact both their clients' treatment outcomes and their own well-being (Delgadillo et al., 2018; McCormack et al., 2018). Therefore, offering the RIP could help couple clients in particular stay in therapy long enough to engage in the process and improve, leading to feelings of efficacy and increased competence in clinicians. This could help to prevent burnout and increase the accessibility of therapy to couples, who are likely paying out of their own pocket for services (Clawson et al., 2018). Future research should be performed to examine these connections.

This study also found that couples experiencing a combination of in-person and telehealth therapy stayed in therapy longer. It may be that therapy in this hybrid format offers the "best of

both worlds" of therapy: the in-person benefits of a stronger therapeutic alliance (e.g., Bradford et al., 2023) and the flexibility of meeting online when needed (Hardy et al., 2021), leading to more session attendance. While future research must examine this further, clinicians might consider taking a flexible approach by offering teletherapy and in-person sessions to couples to support their retention in therapy.

Conclusion

The results of this study indicated that enrollment in the Relationship Investment Plan was associated with over twice the number of post-intake sessions for couples in therapy at a Midwestern clinic. These results suggest that clinic-controlled factors such as the RIP may contribute to the retention of couples, who have historically been the most likely group to drop out of therapy. This study also found that a longer relationship length as well as a combination of in-person and telehealth session formats were associated with more sessions per couple. All these results should be viewed much like a low-resolution television: they are broad associations that indicate a pattern for future studies to elucidate using more deterministic methods with appropriate covariate controls (e.g., a higher-resolution television). As we better understand the clinic-controlled factors supporting client motivation to attend therapy, we can better scaffold this motivation and deter the consequences of missing sessions and early dropout.

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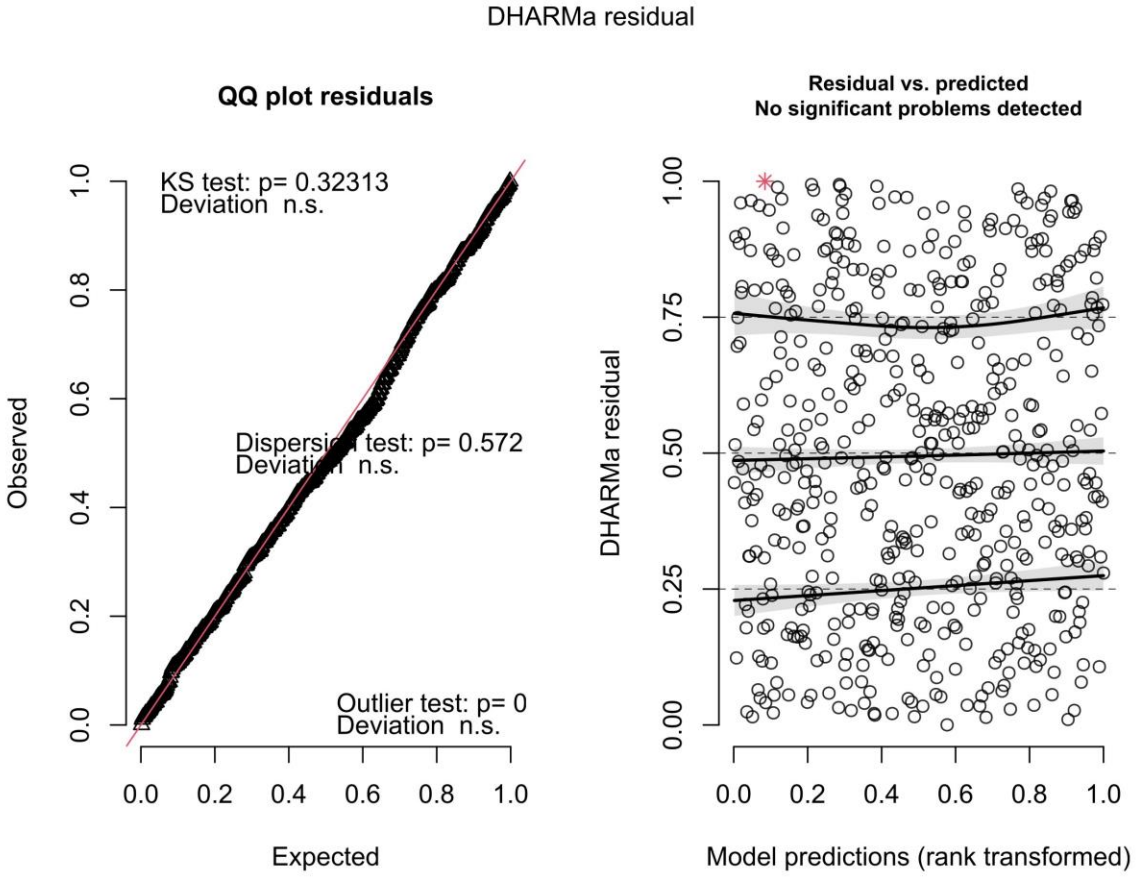
Appendix A - Bayesian Model Diagnostics

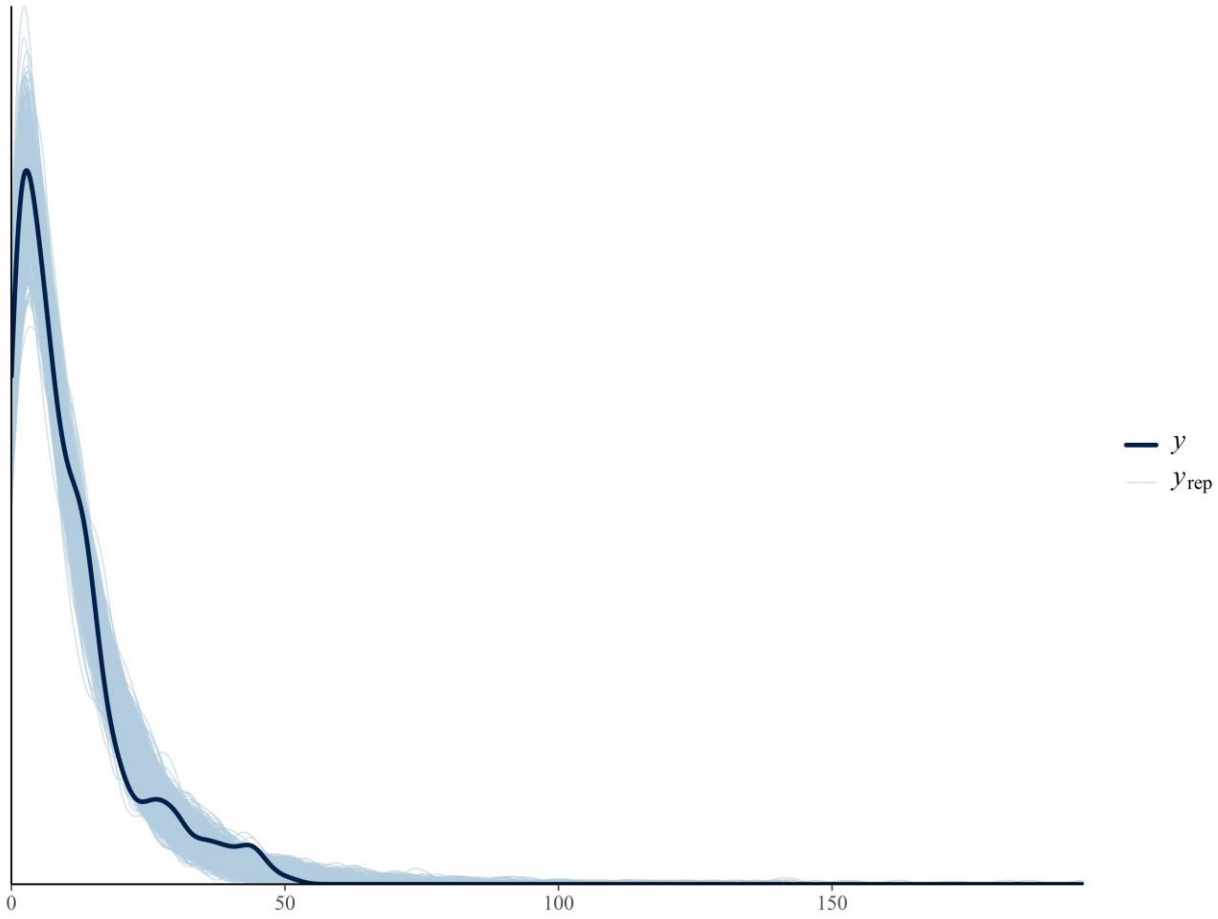
Appendix Figure A.1

DHARMa Residual Diagnostics for Final Model



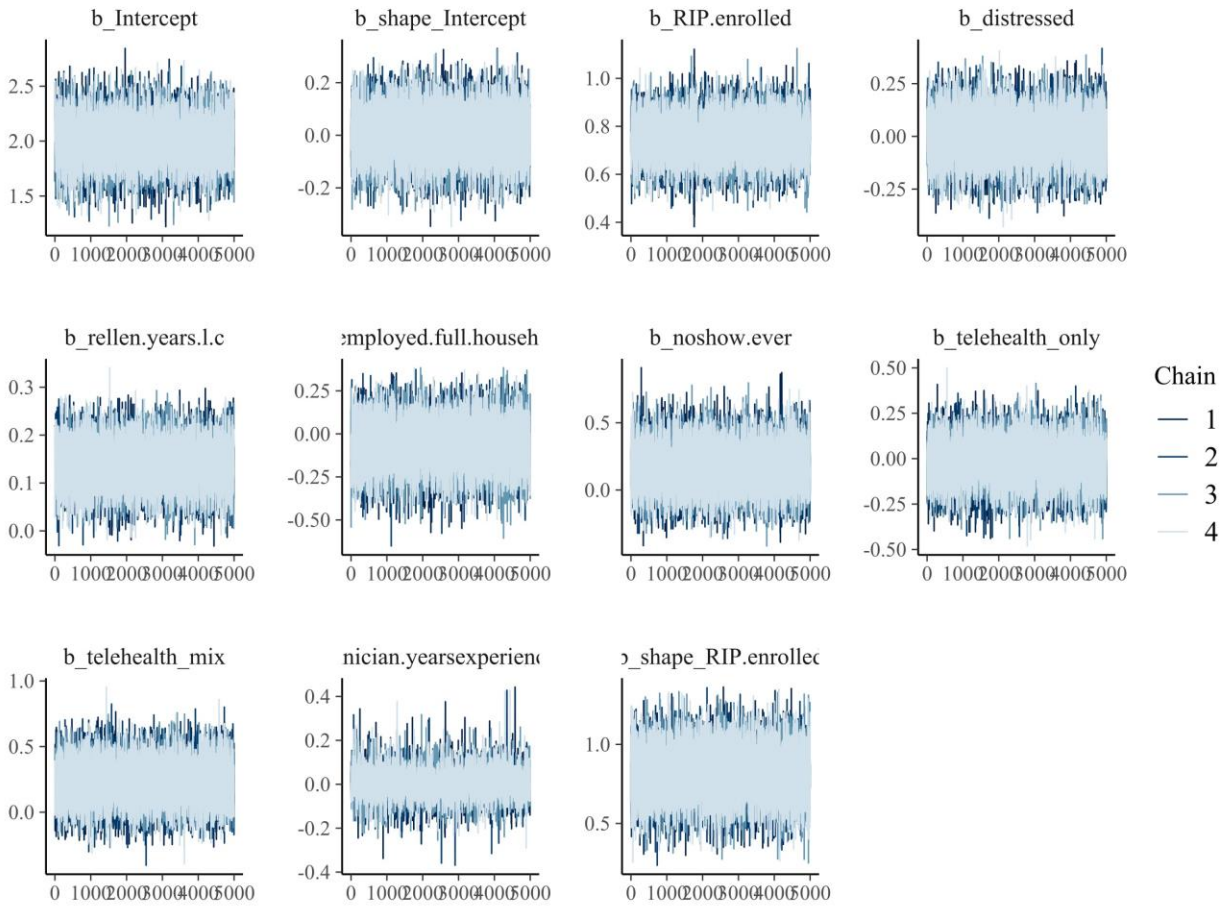
Appendix Figure A.2

Posterior Predictive Check Graph for Final Model



Appendix Figure A.3

Trace Plots for Final Model Slope Parameters



Appendix Figure A.4

Autocorrelation Plots for Final Model Slope Parameters across Chains