Mapping User Engagement in Digital Psychotherapy: An Integrative Engagement Model

James M Zech, Morgan Johnson, Michael D Pullman, Thomas D Hull, Tim Althoff, Sean A Munson, Nicole Fridling, Boris Litvin, Jerilyn Wu, Patricia A Areán

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Abstract

Background: Digital mental health interventions such as two-way, asynchronous messaging therapy are a growing part of the mental healthcare treatment ecosystem, yet little is known about how users engage with these interventions over the course of their treatment journeys. Mapping the user experience in digital therapy may be facilitated by integrating theories from several fields. Specifically, health science's Health Action Process Approach and human-computer interaction's Lived Informatics Model may be usefully synthesized with relational constructs from psychotherapy process-outcome research to conceptualize the determinants of engagement in digital messaging therapy.

Objective: The present study aimed to capture insights about digital therapy users' engagement patterns through a qualitative analysis of focus group sessions. We sought to synthesize emergent intrapersonal and relational determinants of engagement into an integrative framework of engagement in digital therapy.

Methods: A total of 24 focus group participants were recruited to participate in one of five synchronous focus group sessions held between October and November 2021. Participant responses were coded by two researchers using thematic analysis.

Results: Coders identified 10 relevant constructs and 24 subconstructs that can collectively account for users' engagement and experience trajectories in the context of digital therapy. These constructs were organized into a proposed Integrative Engagement Model of Digital Psychotherapy.

Conclusions: Engagement in messaging therapy may be usefully approached through an interdisciplinary lens, linking constructs from health science, human-computer interaction studies, and clinical science in an Integrative Engagement framework. Clinical Trial: https://clinicaltrials.gov/ct2/show/NCT04507360

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Trial Registration: https://clinicaltrials.gov/ct2/show/NCT04507360

Keywords: Health Action Process Approach; Lived Informatics, Digital Engagement; Messaging Therapy

Introduction

Digital technologies are a burgeoning research area in clinical science and an increasingly significant part of modern mental health services. Owing in part to their relative scalability and cost-effectiveness versus in-person care, the global market for Digital Mental Health (DMH) applications —devices and programs that use technology to facilitate behavior change and mental health [1]—is expected to reach $10.2 billion by 2027 [2]. Beyond their growing market share, DMH interventions have been found to be widely acceptable and clinically efficacious in treating a range of mental health issues, including anxiety disorders [3], depression [4], obsessive-compulsive disorder [5],

substance dependence [6], and behavioral addictions [7]. These DMH interventions take a wide variety of forms, from unguided self-help mobile applications to peer-support platforms and digitally-enabled message- and video-based psychotherapy. Wholly self-guided interventions incur near-zero marginal administration cost and are therefore easier to widely disseminate compared to peer- or clinician-guided interventions. However, prior research has found that guided interventions realize better clinical outcomes versus unguided interventions [8], which may be linked to higher rates of user engagement and treatment adherence in guided protocols.

While efficacious guided DMH interventions exist, they can only be clinically effective insofar as they elicit appropriate levels of user engagement. As the DMH research and product landscape has matured, consistent engagement has been identified as the sine qua non of digital care and a key area for future research [9]. Although several promising conceptualizations of digital mental health engagement exist [10–12], the DMH research community presently has no widely agreed-upon definition of engagement or explanation of the mechanisms by which engagement affects behavior change. Indeed, a 2019 review of engagement in human computer interaction identified a total of 102 definitions for "engagement" spanning 351 articles [13]. This lack of conceptual consensus may be due in part to lack of theory; research on digital engagement has been criticized for not being guided by underlying theories of behavior change [14]. By grounding DMH research in existing theories of behavior change, it may be possible to arrive at a clearer understanding of those intrapersonal and contextual factors which influence user engagement.

There are a number of behavior change frameworks which could be usefully applied to the study of DMH interventions, but one model – The Health Action Process Approach (HAPA) [15,16] (Figure 1) – is distinguished by its significant empirical support in other health behavior change contexts. The HAPA model, originally developed as a synthesis of social-cognitive theory [17] and the theory of reasoned action [18], describes behavior change as a multiphasic process. Per HAPA, a "pre-intentional" individual first forms an intention to make some behavior change during an initial motivational phase; this intention formation is mediated by the individual's perceived self-efficacy, net outcome expectancies attendant to engaging in the health behavior, and risk perceptions related to the negative consequences of abstaining from the behavior change. Once a behavioral intention forms, the individual plans the specific steps needed to engage in the desired behavior in the planning phase, engages in the behavior in the action phase, and works to continue that behavior in the maintenance phase.

Figure 1 goes about here

Figure 1: The Health Action Process Approach describes a multiphasic approach to behavior change.

The HAPA model's core constructs have been empirically tested in at least 95 studies [16]. Core HAPA constructs such as self-efficacy and outcome expectancy have been shown to be associated with positive health outcomes in the context of smoking cessation [19], physical activity [20,21], nutrition management protocols [22], trauma recovery [23], and mindfulness training for general mental health promotion [24]. However, recent meta-analytic findings also indicate that not all putative HAPA mediators and moderators are equally relevant across contexts [16]. Notably, there is relatively little empirical support for the mediating role of risk perception on behavioral intention formation versus other core intrapersonal constructs. Zhang et al. also found there to be a smaller effect of behavioral intention on subsequent health behaviors among clinical populations. These findings suggest that the HAPA framework may be a valid conceptual starting point, but also that

theorists must independently validate this model before applying it to novel contexts, such as DMH treatments.

While the HAPA framework could support conceptualizing DMH engagement, it has at least one key limitation: it is a primarily intrapersonal model of health promotion, focusing principally on intrapsychic variables (e.g., one's beliefs, motivations, volitions) as mediators of desired outcomes. However, psychotherapy – including digitally-enabled psychotherapy – is a fundamentally interpersonal process of change which involves two principal actors: a patient and a provider. Likewise, some of the most well-supported psychotherapeutic mediators of change have also been fundamentally interpersonal. One notable example is the therapeutic alliance – a tripartite construct involving the development of an authentic bond between client and provider as well as an agreement on the desired goals of therapy and the tasks required by both parties to affect these goals [25,26]. One of the most consistent findings to emerge from psychotherapy process-outcome research is that the therapeutic alliance is strongly predictive of clinical outcomes [27]. The strength of the alliance is not always stable over time and is liable to "rupture" over the course of therapy [28]. Early work in DMH suggests that there is no difference in client ratings of therapeutic alliance in digital versus in-person contexts [29], though recent reviews on the study of therapeutic alliance in DMH note the need for more rigorous empirical testing of this putative process-outcome relationship [30]. Given the apparent centrality of the therapeutic alliance in psychotherapy, it is reasonable to posit that this and related constructs can, just like the HAPA framework, be usefully leveraged to better understand determinants of DMH engagement.

A further limitation to the HAPA model, and other behavior change theories, is that it does not account for the way that users may engage, disengage, and re-engage with DMH interventions over the course of their user experience. These variable engagement patterns may be due to a range of factors, such as to changing personal goals or contexts changes (e.g., vacation). To account for variable and cyclical engagement patterns across the user lifecycle, we draw on the Lived Informatics Model (LIM) [31]. While developed based on engagement with and use of personal data tools, its overall framework can be applied to describe engagement with a range of DMH interventions. According to LIM, as people progress toward their initial goals, those goals evolve, which then leads to differing engagement patterns with DMH tools (see Figure 2). Accordingly, LIM rejects the notion of ongoing, stable engagement and highlights the importance of designing for both intended lapses (e.g., choosing to take a break from the intervention during a vacation or a busy time at work) and unintended lapses (e.g., forgetting to use the intervention until engagement ceases, at least temporarily; having internet connectivity problems that prevent use of the intervention for a time) and resumption from those lapses. Additionally, the model emphasizes the importance of tool selection, both initially and revisiting the choice of tools as one's knowledge and goals progress [32].

Figure 2 goes about here

Figure 2: The Lived Informatics Model (LIM) emphasizes the importance of deciding to engage in an intervention, selecting tools, disengagement, and resumption alongside the activities within a particular intervention.

In the present study, we detail the findings of five focus groups conducted with users of a digital therapy platform (www.talkspace.com). Talkspace offers both asynchronous message-based care as well as real-time video-based telepsychotherapy with licensed practitioners. Prior research has confirmed the effectiveness of this platform. In a recent observational study of 10,718 users with

clinically elevated levels of depression or anxiety, 67.6% met full recovery criteria, with user engagement (i.e., words sent by the user) significantly predicting better response trajectories [33]. This significant association between engagement and clinical outcomes was replicated in a subsequent study on the treatment of posttraumatic stress disorder [34]. But not all platform users who sign up engage, and not all those who engage experience symptom improvement. Accordingly, we designed the HAPA-informed focus groups to explore the determinants of user engagement patterns, and particularly the motivations that prompted users to initiate, continue, or terminate their treatment. In analyzing focus group findings, researchers ultimately synthesized HAPA constructs with both theories of psychotherapeutic process as well as the Lived Informatics Model to conceptualize the key factors determining user experiences and DMH platform engagement patterns, which we present as an Integrative Engagement Model of Digital Psychotherapy.

Methods

Setting

The platform (www.Talkspace.com) facilitates the pairing of treatment seekers with independently licensed therapists and provides several media types for the delivery of care: daily messaging-only, messaging plus monthly video sessions, messaging plus weekly video sessions, and telepsychiatry. Regardless of the therapeutic modality chosen, each user is offered an introductory live video session (LVS) with their provider. Therapists are predominantly masters-level clinicians with an average of nine years of post-licensure experience. Users can self-pay for the service with a monthly subscription or use it as part of their employment or health plan benefits. Following a standardized intake, individuals are matched with a clinician according to their preferences and diagnostic criteria within 24 to 48 hours. Clinicians conduct informed consent, discuss the frame of the relevant medium, and perform diagnostic interviews, after which treatment unfolds in collaboration with the patient and according to the clinician's judgment. Referrals are provided for individuals who require a higher level of care, or who exhaust their employee or health plan benefits and would like to continue. Users can switch therapists at any time through a self-service feature that restarts the matching process. Therapists can draft and re-use their own scripts (i.e., "canned messages") for routine procedures like introducing themselves, describing the treatment frame, and obtaining informed consent. However, all other therapist messages are strongly encouraged to be individualized and patient specific. Outcome measures are deployed at baseline and every three weeks for quality management, treatment planning by the therapist, and naturalistic research. Interface options include mobile devices and desktop computers, with the messaging feature enabled for audio and video recordings, as well as image sharing.

Participants

This study was approved by the University of Washington institutional review board (STUDY00010958). Participants were drawn from a sample of Talkspace platform users. We recruited by emailing a subset of both past and present users who had used the platform at any time between 2012 and 2021. A total of 24 people provided informed consent and an auxiliary demographic questionnaire, attended the 90-minute focus group session, and were compensated with a $40 Amazon gift card for their participation.

Procedure

Five focus group discussions were conducted between October 25th and November 4th, 2021, each of which included two to nine participants who had prior experience using the platform. All focus groups were held, recorded, and automatically transcribed using a secure Zoom meeting. Participants were asked to briefly introduce themselves and guided through a series of open-ended discussion questions related to their experience on the platform. Three researchers (JZ, JW, TDH) conducted the focus group sessions, ensuring that each participant answered each question while leaving time for open-ended explorations of discussion topics that arose organically. The discussion questions were formulated to uncover the mediating role of core HAPA constructs on engagement. For example, to ascertain participants' initial outcome expectancies, participants were asked: "When you first signed up, how confident were you that Talkspace would be able to help you?" To understand participants' risk perception regarding platform use, they were asked: "What concerns or doubts did you have about Talkspace when you first signed up?" Additionally, we drew on a model for engagement in technology interventions–the Lived Informatics Model, which focuses on lapsing and resumption as part of the engagement cycle [31]—to ask participants about stopping or pausing and resuming their use of platform.

Verbatim transcripts were generated through Zoom, and three researchers (NF, BL, JZ) then independently read the transcripts and used this data to summarize each participant's contribution to the conversation in the form of a narrative vignette. Vignettes were reviewed by all three researchers to ensure all salient information provided by the participant was presented. Each vignette was approximately 450 words. Vignettes used pseudonyms to ensure participant privacy. Initially, the vignettes were coded by two researchers (JZ, MJ) using a directed coding approach [35], where the constructs of the original HAPA and LIM models were used as the codebook. While the vignettes were used to simplify analyses, coders frequently referenced the source transcripts to clarify or expand on information. Though this directed coding approach negated the possibility of grounded theory, the coding team was open to new discovery and theory adaptation and integration based on the fit of emerging codes with the HAPA and LIM models. Several themes (i.e., therapeutic alliance) were not represented in the initial codebook; we altered the coding approach to incorporate a semi-directed/conventional content analysis to supplement HAPA model constructs with codes that we developed during our analysis. A constant comparative method was used to determine whether additional code and/or application of other existing models were needed to explain the data. This data distillation and coding procedure ensured all relevant concepts were brought to the formal coding process. Finally, another round of independent coding ensured that the newly developed coding categories provided a sufficient summary of participant experiences with the platform. A third researcher (MP) settled disagreements when consensus was not met between the two original coders.

Results

Table 1 details the demographic characteristics of our focus group participants. The majority ($n = 16$) of participants were non-Latinx white ($n = 21$), and female ($n = 18$). The plurality of users fell between the ages of 26 and 35, though there was a broad range of ages represented; the youngest participant was 19 and the oldest was 69. While the demographics of our focus group participants largely mirrored those of the wider platform userbase, the proportion of focus group participants with prior therapy experience was notably smaller—just 16.7%—than the wider userbase with prior therapy experience (57.5%).

Table 1: *Descriptive statistics of focus group participants (*n *= 24) compared with the Talkspace*

client population

	Sample Frequency	Sample %	Talkspace %
Ethnicity			
White or Caucasian	16	66.7%	67.8%
Asian	3	12.5%	8.4%
Black or African American	3	12.5%	13.4%
More than one race	2	8.3%	0.8%
Ethnicity			
Hispanic or Latino	3	12.5%	6.9%
Not Hispanic or Latino	21	87.5%	93.1%
Gender			
Female	18	75.0%	72.1%
Male	5	20.8%	26.1%
Nonbinary	1	4.2%	1.8%
Age			
18 - 25	3	12.5%	9.0%
26 - 35	10	41.7%	48.0%
36 - 45	3	12.5%	29.5%
46 - 55	3	12.5%	9.3%
56+	1	4.2%	4.3%
Not disclosed	4	16.7%	-
Prior Experience in Therapy			
Yes	4	16.7%	57.5%
No	20	83.3%	42.5%

Coders identified a total of 10 constructs, which were segmented into 24 constitutive sub-constructs as shown in Table 2. A portion of these constructs and sub-constructs were derived from the original HAPA framework: namely, outcome expectancies, treatment attitudes, self-efficacy, resources & barriers, and action planning. However, coders encountered two difficulties in applying the baseline HAPA frameworks to the focus group discussions. First, there were many instances where HAPA constructs could either be further broken down into sub-constructs (e.g., the 'action planning' stage was composed of three questions: "what digital platform should I use?", "what treatment should I seek?", and "which provider should I pair with?") or truncated into a single construct (e.g., merging task self-efficacy, maintenance self-efficacy, and recovery self-efficacy into the single construct self-efficacy). Second, focus group participants discussed topics that, while central to their DMH journey, could not be readily distilled into the HAPA or LIM frameworks; in particular, participants focused on their relationship with their provider. The coding team therefore included constructs from the wider psychotherapy process-outcome research literature: therapeutic alliance [25] and therapeutic ruptures [28].

Table 2: *Focus group constructs and sub-constructs*

Construct	**Sub-construct**	**Example**

Outcome Expectancies	Treatment Positives	Participant had high expectations when she joined, due to prior experiences with in-person therapy.
	Treatment Negatives	Participant was concerned about being heard the same way as in traditional therapy, as there would be no body language
Appraisal-Motivational Factors	Perceived Needs	Participant who had several prior suicide attempts understood that foregoing mental health treatment was dangerous
	Treatment Attitudes	Participant began looking forward to her session more and more as treatment progressed
	Self-efficacy	Participant did not think they could be present during video therapy due to self-consciousness
Behavioral Intention	-	Participant who had been struggling with mental health issues decided to give treatment a try as a New Year's Resolution
Resources & Barriers	Financial	Participant's workplace heavily subsidized his therapy
	Geographic	Participant lives in a remote part of Washington state, where there were no in-person therapy options
	Technical	Participant struggled with video sessions on the platform as internet on both ends plays a large part in the success of the call
	Informational	Participant who thought she would have preferred video therapy didn't know that Talkspace provides video therapy
	Relational	A South Asian male Participant felt that "where I come from, you would never talk about mental health"
Action Planning	What Platform?	Participant had also tried Noom and BetterUp, at times concurrently
	What Treatment?	Participant who was self-conscious about her appearance preferred messaging only
	What Provider?	Participant would like to see more demographic variety in available therapists
Treatment	-	Participant was happy that she was able to message her therapist whenever she felt strongly about something
Therapeutic Alliance	Real Bond	Participant primarily used the platform to gain a sense of connection (when she had been drinking)
	Goal Agreement	Participant and therapist agreed early on in treatment to aim towards being less anxious at work
	Process Agreement	Participant liked that her therapist would respond in the same format that she to him in (bullets)
Therapeutic Rupture	-	Participant felt that the second was too generic and repetitive with advice that did not work - somewhat like a bot
Rupture Responses / Coping Planning	Replace Provider	Participant was demoralized when they had to switch providers and retread old conversational ground
	Repair Problem	Participant did one video session, didn't like it, and switched to messaging only with the same provider

	Withdraw	Participant felt as though she wasn't being listened to and stopped responding as frequently
Termination	Successful	Participant used Talkspace for ~4 months and ultimately felt that she got what she needed and did not need to renew her subscription
	Unsuccessful	Participant stopped treatment because she didn't think her provider had an authentic understanding of her particular life conditions

Over the course of our multi-iterative coding procedure, we developed a new working model of digital mental health treatment seeking and engagement which integrated HAPA and LIM constructs as well as constructs from psychotherapy process-outcome literature. This Integrative Engagement (IE) Model is illustrated in Figure 3.

Integrative Engagement (IE) Model

Figure 3 goes about here

Figure 3: The Integrative Engagement (IE) Model

Here we provide a brief overview of the IE Model, followed by detailed summaries of each construct with qualitative evidence. This new model consists of four phases: Deciding, Selecting, Engaging, and Terminating. Per the IE Model, potential users start out in a (1) Deciding Phase wherein they first form a behavioral intention to engage in some form of DMH treatment. An individual's behavioral intention formation is influenced both by their negative and positive outcome expectations related to treatment as well as three principal appraisal-motivational factors: the individual's perceived level of need for mental healthcare, the individual's positive or negative attitudes towards care, and the individual's domain-specific self-efficacy related to the tasks that involve DMH treatment. These intrapsychic factors are influenced by external resources and barriers segmented into five categories: financial, geographic, informational, technical, and relational. Once an individual forms a behavioral intention to engage in treatment, they enter the (2) Selecting Phase, wherein they attempt to answer three core questions: "what digital platform should I use?", "what treatment plan should I use?", and "what provider should I work with?". Each of these questions is influenced by the appraisal-motivational, outcome expectancy, and resource and barrier elements from the deciding phase. These questions, once answered, lead to the (3) Engaging Phase, which begins with treatment initiation and transitions to treatment maintenance. Treatment initiation and maintenance are influenced by external resources and barriers, appraisal-motivational factors, and therapeutic alliance. Over the course of treatment, it is possible that a therapeutic rupture—a breakdown in the therapeutic alliance—takes place. At this point, the user has three possible rupture responses. They can replace their provider, thereby returning to the selecting phase, they can attempt to repair their relationship and re-initiate effective treatment, or they can withdraw from treatment, leading either to the unsuccessful termination of treatment or an eventual re-initiation of treatment after a period of dormancy. Even if someone continues in treatment with a provider, they will eventually reach the (4) Termination Phase, with termination existing on a continuum of successful to unsuccessful. The outcome of treatment will inform an individual's future outcome expectancies regarding mental health treatment as well as their appraisal-motivational factors.

Appraisal-Motivational Factors

Figure 4 goes about here

Figure 4: IE Model – Appraisal Motivational Factors

A set of intrapsychic, appraisal, and motivation factors (i.e., "appraisal-motivational factors") played a significant role in participants' digital help-seeking and treatment journeys. These were:

-   Perceived needs: An individual's perception of their level of need for engaging in digital therapy.
-   Treatment attitudes: Cognitive appraisals or a way of thinking or feeling about digital therapy. This component was an addition to the HAPA model.
-   Self-efficacy: Perceived behavioral control; an individual's beliefs about their ability to do the tasks necessary to engage in digital therapy.

Perceived Needs

When asked about why they sought digital treatment, participants all noted a perceived mental health need. In some cases, this was a function of prior experiences with mental health emergencies:

> *I've had three suicide attempts in my life and one ICU event, so I completely understand at this point in my life that I need help– that I have to talk to someone because the way I think of things and process it on my own can lead to bad end results.*

Other participants noted more general and less immediately urgent life difficulties, and they believed themselves to be unable to manage their mental health challenges effectively by themselves:

> *And I was just in at the time, I was really struggling and really just needed somebody. And I thought, you know what, I'm just gonna try it, we'll see what happens.*

Treatment Attitudes

Participants held a range of pre-existing attitudes towards digital mental health. Some harbored no stigma regarding mental health treatment, resulting in positive attitudes towards their sessions (e.g., *"I look forward to connecting with my therapist every day."*). These attitudes varied over time, becoming more negative upon unsatisfying interactions with their provider and more positive when users felt listened to, cared for, and connected to their therapist. One user particularly attributed positive sentiment towards treatment to her ability to engage continuously with her provider via text:

> *And so [...], you know, I could, anytime, write out what I was feeling [..] that kind of just adds a nice dimension to sharing your experience with the therapist.*

Some participants noted that internalized mental health stigma had made them reluctant to seek help. One participant with a long history of mental health treatment and high perceived need disclosed generally skeptical attitudes towards the authenticity of the emotional intimacy she may have experienced at different points during her DMH treatment experience:

> *Like I said, I've always thought of talk therapy as being almost like, please forgive me for using this word, but like, talk prostitution, like I pay you and you let me talk to you.*

That this participant used Talkspace despite her negative treatment attitude indicates that, at least in some cases, mental health help seeking can coexist with negative treatment attitudes, especially given high perceived needs.

Self-Efficacy

Participants' reluctance to try the digital platform was partly due to their lack of confidence in their own ability to effectively engage in the treatment. Low self-efficacy in *receiving* digital care informed participant treatment. For instance, one participant, doubting that she would be able to remain present during video sessions due to her self-consciousness, opted for a purely text-based treatment. Another participant indicated low confidence in their ability to accurately express themselves in real time, and accordingly chose a messaging-only treatment plan: *"...being able to write it out was much easier for me to convey what I wanted to communicate to my therapist."*

Though self-efficacy played a role in DMH engagement, focus group data did not enable us to distinguish between the three subtypes of self-efficacy outlined in the original HAPA model, namely:

- Task self-efficacy: beliefs about one's ability to engage in health behavior activities.
- Maintenance self-efficacy: beliefs about one's ability to cope with barriers that arise during a health behavior maintenance period.
- Recovery self-efficacy: beliefs about one's ability to resume a health behavior after a lapse.

Participants' self-efficacy narratives centered on their ability to use the app itself and build a therapeutic relationship with their therapist. There was some debate among coders as to whether two different subcategories of self-efficacy should be defined: "technical self-efficacy" and "relational self-efficacy". Ultimately, the coding team decided to define only one overarching construct of self-efficacy due to the paucity of participant references to self-efficacy.

Outcome Expectancies

Figure 5 goes about here

Figure 5: IE Model – Outcome Expectancies

Outcome expectancies are people's expectations about the clinical outcomes resulting from engaging in DMH treatment. These differ from attitudes because they are beliefs and focused on outcomes of treatment. Participants described both the potential benefits of treatments such as interpersonal connection and symptom reduction as well as the drawbacks of treatment such as wasted time, financial costs, and the fear of being neglected by their therapist.

Treatment Positives

Those who endorsed higher initial outcome expectancies were more likely to have positive prior experiences with therapy and to focus on the ways in which the experience of digital therapy could be similar to that of in-person therapy:

> *I figured, well, Talkspace would just be, you know, generally the same thing if I got a*

*traditional therapist versus something, you know, on this on this medium, so I was just
as confident as I would be in any other kind of therapy.*

Other participants recalled being excited by the prospect of engaging regularly with a provider from
their mobile phones and optimistic that on demand connection with a mental health expert would be
helpful.

Treatment Negatives

Those who reported more mixed and negative outcome expectancies were focused on the potential
differences between the experience of digital versus in-person treatment. Participants worried the
lack of verbal cues and body language in messaging therapy could interfere with the patient-therapist
relationship:

*So, I've done therapy in person before trying Talkspace. And so I was really
concerned if, if I would really be heard the same way - if I would have like the same
connection, if that would all be there. And you know, if like, body language […] and
all of that would really be able to read and understood.*

Resources & Barriers

Figure 6 goes about here

Figure 6: IE Model – Resources & Barriers

Participants identified several types of external resources which facilitated their engagement in
digital treatment as well as barriers that led them to either disengage or fail to initiate treatment. This
finding maps well onto work in the Human Computer Interaction field related to the burden
associated with using technology. According to Suh, et al (2016), user burden consists of six
constructs: challenges in the understanding how to use the tool, physical challenges in using the tool,
the time is takes to engage with the tool, mental and emotional burdens, concerns with privacy, and
financial burden. Based on our focus group data, the burdens identified by participants when using
DMH are financial, geographic (which may align with physical and time burden), informational and
technical (which align with user understanding), and relational (which align with mental and
emotional burdens). We propose segmenting a pre-existing feature of the HAPA framework—the
construct of "external resources and barriers"—into these five sub-constructs.

Financial

Many focus group participants noted that the financial cost of DMH treatment was a barrier, and one
which led many to terminate their treatment despite psychological benefits. Conversely, participants
with workplace-related benefits packages, including a partial or fully paid subscription to the
platform, were more likely to continue to engage in treatment. One participant's experience
exemplifies the benefit of workplace-assisted mental health packages on initial treatment
engagement:

*...it's one of those things where it's like, my employer is offering it, having someone
that actually has experience with it. It's like, okay, this is fantastic. I'm gonna go
ahead and give it a try. Awesome."*

The presence or absence of financial resources played an important role in digital engagement. Focus
group participants who had access to substantial coupon codes that could be redeemed during only

the first month of treatment described ending their subscription once these coupons ran out, even when they found the treatment to be very helpful.

Geographic

In this focus group, participants identified the ability to use the platform from anywhere as a means of overcoming geographic barriers to treatment. Several participants located in more remote areas of the United States noted that in-person therapy presented a time burden that exacerbated last minute cancellations:

> *You don't want to have to drive an hour to therapist and then find a little sign on our door saying that, you know that sorry, you didn't get my email, but I'm not going to be here, you know, or something like that.*

When asked about her decision to seek therapy on a digital platform, another remotely-located focus group participant noted that DMH treatment was her only truly viable choice:

> *And I thought 'I just have to talk, I have to talk to someone. Like I said, I live out in the back of beyond. I'm the last driveway for 60 miles. So that is what my thought process was in answer to your question. It was just, I got to talk to somebody.*

Technical

A few participants noted technical challenges due to the platform itself (e.g., a mobile app bug) or their resources for connecting to it (e.g., sparse internet connection). For one geographically remote client, internet-related technical difficulties posed a continuous barrier: *"It's just one of those things that I will say is hard because you just can never guarantee what your internet service is going to do."* Most participants encountered minimal technical difficulties and agreed that the in-app user experience was intuitive and simple to navigate.

Informational

Informational barriers and resources touched on Talkspace's platform and individual's knowledge on mental health and mental health services. Access to information about Talkspace's menu of treatment options was a resource that some users lacked; one focus group participant suggested that Talkspace expand its services to include live video sessions and was surprised to learn that the platform had been offering video-based therapy throughout her time on the platform.

Relational

Several participants noted that their DMH engagement was either positively or negatively affected by personal relationships. One South Asian focus group participant, wanting to keep his mental health issue from his extended family, felt as though a digital platform would be his most discrete treatment option: *"...where we come from, you know, we don't - we can't even tell the family that we're going to therapy"*. Relationships were also a resource and facilitator of treatment. Another user reported that he would often speak with his partner immediately after the end of his weekly therapy session to share his newfound personal insights.

Behavioral Intention

According to the HAPA model, engaging in health promoting behaviors involves a motivational stage, where an intention is formed, and a volitional stage, where planning and execution takes place; this broadly corresponds to the deciding stage of the LIM. After a behavioral intention is formed, in

the volitional phase the individual begins planning the specific actions needed to facilitate change. In the context of digital mental health treatment seeking and engagement, these two phases are chronologically truncated into one continuous process. That is, users with basic resources (e.g., a device with access to the internet) can form an intention to seek DMH treatment and then immediately take the next steps towards entering treatment. Accordingly, it proved difficult for coders to differentiate between instances of behavioral intention formation and instances of action planning. When asked about how they initially formed a decision to seek help, individuals had a variety of responses. Some focus group participants reported coming gradually to an intuitive understanding that seeking *some* kind of mental health treatment was needed: *"I decided [Talkspace] was something I needed … It just felt like it made a lot of sense for me, especially with my work schedule."* Other times, behavioral intention formation was triggered quickly, in response to seeing an external cue such as an advertisement for the platform over social media:

> *I saw an ad and was kind of like 'okay, I should do this now'. And I think that was probably the easiest part… just being able to kind of start the process immediately without having to look online and get referrals for someone locally.*

This participant's example also highlights how, when the behavioral intention is inspired by learning about a particular tool, such as through word of mouth or an advertisement, the selection and deciding phases of the LIM may be concurrent, or selection may even precede the decision to take action. Additionally, as we will discuss further, the process of investigating Talkspace or another DMH tool to support a decision sometimes include taking initial steps toward action planning or initiation, such as a creating an account on the site.

Action Planning

Figure 7 goes about here

Figure 7: IE Model – Action Planning

Nearly all focus group users reported that they began planning their DMH treatment journeys immediately after forming a behavioral intention to seek treatment. Once users decided that they should engage in DMH treatment, they immediately began an internet search to ask and answer questions about the type of platform, treatment, and provider they should use.

What Platform Should I Use?

Participants generally began their action planning by asking themselves which DMH platform was best suited to their needs. Users visited websites, read reviews, and downloaded multiple applications.

Participants noted being attracted to the prospect of being able to engage in treatment at their own pace and saw Talkspace as a platform where the user could architect their DMH journey: *"…it was customizable … [Talkspace] was accessible, I could send as many or as little messages as I want (sic). I could follow up when I needed to or when I wanted to."*

Because our sample is restricted to individuals who chose to use Talkspace, we are unable to derive firm conclusions regarding the factors that are most important for *all* potential users in determining

which platform fits their needs, but our focus groups indicted that users were interested in privacy, accessibility, and credibility.

What Treatment Package Should I Choose?

On Talkspace, DMH treatment seekers also decide which treatment package they should try, generally divided into text-only, text plus once per month video sessions, or text plus once per week video sessions. Our participants noted a range of preferences for different treatment options on the platform. One participant's choice of messaging-only treatment plan was influenced by self-consciousness about her own appearance*: "...it all turned out to be text or audio, which I think I preferred. I have a tendency to be really self-conscious."* Several other participants indicated that asynchronous messaging fit well with their schedule and offered a uniquely "on-demand" therapy experience:

> *I think the chat feature was what made Talkspace unique. It was what I really liked about it…I just really think that that chat feature is unique and, you know, you know, not something that you really can replicate from, you know, [offline] therapy relationships.*

What Provider Should I See?

Choosing the right provider was one of the most important decisions that most participants felt that they had made throughout their treatment journey. Participants noted that Talkspace easily offered a wide selection of potential providers. Most participants had positive things to say regarding their provider selection experience, such as one person who noted *"I liked that I could go through the available counselors, and then can choose the counselor which seems best for me."* Another participant reflected that her therapist selection decision was decided by a sense of connection rather than credentials:

> *I liked how y'all have the picture [of the therapist]. And then the specialty of what they do, and then they write about themselves. And so when I was reading that the reason I chose [my therapist] is because of her wording. It is the way she wrote her introduction that got me. And I liked the way she put it out there. Some therapists were just like, 'I've got a degree. I've done this.' And I don't care about that. The way she wrote it was inviting. And I just I felt like that's going to be a good match. And it did it ended up being perfect.*

Some participants expressed the desire to match with a provider with similar racial or ethnic backgrounds:

> *For me, I think the biggest one was finding a therapist who would understand my unique experiences and backgrounds. So just having a diverse, diverse selection of therapists, I remember when I first like was going through therapist bios to see their background, I was definitely looking for an Asian woman as a therapist. So that I think that was one of the concerns I had going into it.*

Treatment

Figure 8 goes about here

Figure 8: IE Model – Treatment

After matching with a provider, participants entered treatment and the engaging phase, or what LIM would describe as "tracking and acting". Drawing from the original HAPA framework, treatment can be segmented into two stages: initiation and maintenance.

Initiation

Whereas the initiation of traditional psychotherapy will almost always entail a discrete event (viz., an initial therapy consultation or face-to-face session), the boundary separating DMH treatment initiation from prior action planning steps is not so clear-cut. This is because users so often initiated treatment very shortly after they formed a behavioral intention. We operationalized treatment initiation as the immediate steps that take place after a user signs up for a specific treatment package on the platform

Though the ability to rapidly move from behavioral intention formation to treatment initiation is a clear benefit of DMH platforms, one participant noted his ambivalence about the speed of this process:

> *I found myself [signed up for the platform] within a span of like, 10 minutes [...] You know, I already had scheduled something, I mean, it was just, it was actually almost too simple. But I also think that made me feel more comfortable about it, because it was so easy to do. [...] I didn't feel like I had to jump through hoops or, you know, cut red tape or any of that stuff.*

Streamlining the transition from intention formation to treatment initiation may have drawbacks in addition to its obvious benefits. Users might benefit from more reflective deliberation before selecting a platform, treatment modality, or provider to ensure that their choices align with their treatment goals and preferences. There may be an inevitable trade-off that platforms need to consider between providing critical treatment information and focusing on treatment initiation.

Maintenance

After treatment initiation, participants were free to engage with providers. Unlike in traditional psychotherapy delivery settings, this engagement could happen at any time that the DMH user finds convenient. One participant was happy that she was able to message her therapist whenever she felt the need:

> *I know, for me, the thing I really liked about Talkspace was the fact that I could do the text messages like anytime to my therapist, like anytime anything came up. So, I could just immediately go send that to them texts and like notify them. And I also did do some chatting, but not video chatting, but I would get overwhelmed with talking. So being able to write out my thoughts made it much easier for me to convey what I wanted to communicate to my therapist.*

Though participants were universally in favor of this constant ability to message their provider on demand, many of the same participants reported a period after downloading the app when they realized how much the experience of digital therapy differed from in-person therapy. Participants who expected on-demand *responses* from their therapist were more likely to report having unmet treatment expectations, particularly in the earlier stage of the treatment. Another subset of high outcome expectancy participants, generally with prior experience in therapy, came in with no preconceptions regarding the nature of the digital therapeutic experience. This latter group of

participants tended to report being pleasantly surprised by how well they were able to "customize" their treatment experience to suit their therapeutic needs:

> *So, I was initially thinking "Okay, [let me] kind of like try this out. Let's see how it goes." And it ended up being so impactful. For me, it worked for me, I could see how it wouldn't necessarily work for everyone. But it was customizable. It was accessible, I could send as many or as little messages as I want. I could follow up when I needed to or when I wanted to. So, it was a really good thing for me.*

Therapeutic Alliance

Figure 9 goes about here

Figure 9: IE Model – Therapeutic Alliance

One of the most consistent discussion topics throughout the focus groups was participants' relationships with their provider. Though the focus groups sessions were not intended to explore therapist-participant dynamics, these dynamics were central determinants of the participant's DMH engagement. Accordingly, the three components of the therapeutic alliance (i.e., goal agreement, process agreement, and the development of a real bond) were analyzed.

Real Relationship

Many participants came into treatment focused on developing a genuine relationship with their therapist, and therapists' initial messages seemed to have a large impact on users' beliefs in the feasibility of developing a bond over text. Some users reported instantly "clicking" with their provider, while others felt ambivalent about their therapist's responses, and still others were immediately disappointed. Short and generic-sounding therapist responses caused participants to quickly lower their expectations. As another user put it: *"I kept getting the same cookie-cutter, candy-canned messages!"* Yet other users were surprised by their therapists' thoughtfulness. One participant who was struggling with substance use noted:

> *…I didn't know what to expect honestly, but I didn't expect how thorough [my therapist] was going to be on the front end of the first session. Understanding, you know, everything that I wrote and asking specific, pointed questions about things that I wrote.*

While users generally agreed that the message-based communication allowed them to develop genuine relationships, several users felt that could have developed a stronger relationship with their provider if they had engaged in an introductory video session. Conversely, some users who *did* engage in these introductory video sessions came away feeling like the visual and synchronous component did not materially add to their experience. One user reflected: *"I did a face video once with [my therapist]… she's precious, but I don't need to look at her."*

Goal Agreement

While therapist-client goal agreement was central to participant experiences, participants' therapeutic goals were often not made explicit. One participant who had clearly defined treatment goals found her therapist to be helpful early on in her DMH journey:

> *My goals at the time were to kind of deal with anxieties that were cropping up around the pandemic and how I was dealing with all of that, and [my therapist] really proved*

to me that she was listening by how she responded with detail and with care.

Conversely, one participant voiced frustration that his treatment goals were not explicitly discussed:

> *…for me, my experience with my therapist was like, 'How are you feeling today?' And like, that's a really good opening question. But then there was nothing about 'What are your goals for this session?' 'What are your goals for this month, and maybe even something to help build towards?' You know, 'What do you want to work on this month?' Or 'How are you feeling through this?', …something like that could build some type of achievable outcome.*

Notably, several participants recommended that the platform include the ability to have clients enter therapeutic goals in their profiles that their therapists could regularly reference. These accounts suggest that goal agreement is an important early feature of an effective healing relationship, and that therapeutic dyads which more explicitly outline and return to a client's goals will engender a sense of progress and purpose, thereby leading to continued engagement.

Process Agreement

While participants expressed confidence about the type of therapeutic responses, they thought would be most helpful, these differed; some preferred a non-directive approach whereas others explicitly sought advice. When their providers aligned with their preferred treatment style, participants reported feeling more optimistic and engaged. One participant seeking help with depression was happy to receive recommendations from her provider: *"So it was really nice to kind of get some of that advice, and kind of put that into practice and then have an opportunity to also connect"*. Another noted that *"helpful advice was something that I thought was very beneficial"*. But other participants wished that their therapists gave less advice, and felt that the advice, when given, was overly generic. One participant who described herself as "desperate for connection" grew particularly frustrated when her therapist offered suggestions about how she could cope with her challenges. It follows that by explicitly asking about these preferences, DMH providers can tailor their directiveness to suit the needs and preferences of users.

Implicit agreement on the therapeutic process was also reached in terms of the messaging styles and cadence with which the therapeutic dyads engaged. Dyads who explicitly outlined communication expectations (e.g., "I will respond to you at least five times per day, five days per week") were more likely to result in positive treatment experiences. Messaging style was also important:

> *So, I could kind of talk about a few different things. In the context of me sending one message, you know kind of just bullet format it out, and then get responses instead of just responding to one of those things. [My therapist] could respond individually back to me to each of those topics.*

Therapeutic Rupture & Responses

Figure 10 goes about here

Figure 10: IE Model – Therapeutic Rupture & Responses

The notion of therapeutic rupture and repair has a long history in face-to-face psychotherapy process-outcome research (cf., Safran, 2011; Eubanks et al., 2018), but its impact on engagement in DMH

treatment has not yet been thoroughly explored. Many participants described periods in which they felt disconnected from their provider. These periods most often centered on the content or style of therapist messages. For instance, one user noted:

> *…[my therapist] was just giving me generic information. And there were a couple times I was bringing issues to her and she would repeat something she's already told me that I told her did not work prior. So, it's just like, 'Oh, she's not really listening to my concerns', like 'she's working from a script'. So, I was worried that she wasn't really listening to what I'm saying. She's just like seeing keywords… it was like a bot..."*

Overly generic, short, cookie-cutter messages like those mentioned above tended to prompt these therapeutic rupture moments. Focus group participants responded to these moments in three primary ways: (1) seek to replace their current provider, (2) address the rupture to repair the relationship, or (3) withdraw from treatment, either actively or passively.

Replace Provider

Some participants opted to replace their providers when they felt a therapeutic disconnect, whereas others did not seem to mind having to switch providers, or even to do so multiple times. One participant casually reported: *"I also ended up switching and went through two therapists before finding my third one, who I love."* Another was appreciative that the platform made it easy to switch:

> *I think after it was like one or two sessions, I was like, this person just doesn't get me. It's nothing personal. They just have their own opinion of it. And I enjoyed being able to ask, you know, to kind of send a message and easily say like, this isn't the right fit, because, and then they helped match me with someone else who worked really well with me for a while.*

The ability to instantaneously terminate with one provider while engaging with a new one is both a unique feature of DMH platforms and a well-appreciated aspect of this user's experience:

> *My ability to change to a different therapist was phenomenal. Like, there was no questions asked, I mean, it was just kind of like a little survey. And the survey was very quick. It wasn't, I didn't have to write a dissertation to explain why I was just able to change. And, and that helped me tremendously.*

However, for other participants, switching providers was a thoroughly demoralizing experience. Several participants said that the switch required them to "retread old conversational ground". Demoralization was highest in cases where participants had already invested time and energy into working with their initially assigned provider. Some active users might persist with a provider even in the absence of a strong therapeutic alliance due to the time and effort it takes to make a therapist switch. However, participants who switched providers often found better dyadic experiences after switching.

Repair Problem

While many focus group participants opted to replace their provider, fewer seemed willing to directly address the source of their therapeutic rupture. Participants who addressed ruptures were centered mainly around aspects of the platform experience (e.g., switching from messaging-only therapy to a video-based plan) rather than aspects of the therapist-client relationship. While participants found it easy to request a change in her platform experience, such as using text instead of video, they

appeared less willing to ask for a change in the provider's therapeutic approach (e.g., more messages per day; less advice). At times, the line between rupture repair and provider replacement was not clear. One participant initially confronted his provider about her apparent lack of thoughtfulness, tried to replace her as a provider, and left the platform:

> *I cancelled Talkspace for about a month, and I dismissed … my therapist. She, she gave me one-line responses to some of the problems I had, and she proposed some very frustrating psychobabble, which is, you know, it's not really psychobabble. But it's just basically anyone already knows…. And I, I confronted her on that. And then that that was it. That was a Thursday, she didn't reply to what I had said for the rest of Friday, and I just threw my hands up. And, I switched to a different therapist at that point in time.*

Interestingly, this user left the platform, returned, and ultimately re-matched with this original provider, reporting:

> *Our relationship has improved over time over many months. And she and I have a lot of similarities in in the way we think, and our personalities and our perceptions... She now gives me very, very well thought out research and analysis and she under understands more.*

Withdrawal

Many participants opted to withdraw from treatment rather than address their concerns directly with their provider or seek another therapist. This withdrawal was generally passive; participants reported simply disengaging from the platform. One participant, unhappy with the directive approach her provider was taking, eventually disengaged altogether:

> *I think ultimately, I stopped using Talkspace because they were like, really heavily pushing CBT methods and like, those just weren't working for me. So maybe if like, there was something else, like the therapists were trained in, or if there was an option to like, just talk and like, you can stop pushing the like, reframing and everything. Like that approach doesn't work for everybody, you know?*

Passive withdrawal is another approach:

> *I used it for about a month, but then I just let my three-month period run out. So, I didn't actively go in to cancel it. I had maybe thought about switching therapists but it felt like doing the switch and only having six to eight weeks or so to like start a new relationship again, didn't feel like enough time to make it worthwhile.*

Withdrawal can occur even when a user has a positive bond with their therapist. One participant who had been struggling with a low sense of self-worth stated:

> *My therapist was lovely. She was just very upfront about how [I should be] typing about [my] experiences…one of the things I really needed help with at the time was like taking space, I found that it was really hard for me to interact with my therapist just because I was like, 'Well, what if she's busy?', … even though there was all this freedom [to message] and that was a great thing.*

Withdrawal and replacement may be more common responses to therapeutic ruptures in DMH versus

engaging in relationship repair. Notably, rupture-repair experiences have been shown to be associated with better clinical outcomes in face-to-face psychotherapy (Eubanks et al., 2018); this prior literature suggests that the relative ease with which a user might disengage from a ruptured relationship in DMH contexts could ultimately be to the detriment of the therapeutic experience. This also would align with research on engagement with digital tools that informed the LIM. As noted by participants in focus groups, there are often fewer barriers to initiating use of a DMH tool or treatment. While we note the opportunity to scaffold slower, more intentional choices of DMH treatments, therapists, and tools above, it can also be advantageous to see as one of the benefits of DMH: people can try a tool, treatment, or therapist to find out if it works for them. If it does not, they can switch. To achieve these advantages, we also propose design opportunities informed by the LIM: designs that support people in assessing if a tool, treatment, or therapist is working for them (while also not promoting unrealistic expectations about immediate successes) and techniques that support tuning engagement to make an experience work better or returning to the selection and initiation stage if someone should try a different tool, platform, or therapist. Additionally, when people learn that a particular approach is not working for them, designs should frame this disengagement and reengagement as a success–they have learned something–not a failure.

Termination

Figure 11 goes about here

Figure 11: IE Model – Termination

While many health behaviors (e.g., quitting smoking, exercising regularly) are lifelong endeavors, effective psychotherapy usually reaches an endpoint. Focus group participants described an array of factors that led to their terminating therapy. Therapy termination can be conceptualized on a continuum from "successful" to "unsuccessful." Successful termination is characterized by participants' sense that they had made significant improvement while using the platform, and that this improvement was connected to their treatment. One client used the platform for several months before ultimately deciding that she had gotten what she needed from the intervention:

> *Yeah, I think I used the platform probably between three to six months. I think I had like kind of like an extended subscription. And you know, when it came time to renew, I kind of felt like I had gotten what needed out of it at the time.*

Consistent with research informed by the LIM [36] DMH tools should recognize these successes. This extends to reminding someone of their past success if they later reengage in treatment.

But clinical improvement was only one of the many reasons why participants terminated. Other participants indicated that while they had generally positive experiences with the platform, they eventually realized that they needed a different treatment approach. One participant left the platform to take a more explicitly spiritual approach to treatment:

> *I was kind of apprehensive to the idea of virtual counseling. But Talkspace actually ended up being a really good option for me… the only reason that I did stop working with Talkspace is because I was I kind of just got to a point where I felt like I, I needed some faith-based counseling, that, you know, just something that aligned more*

with my beliefs… the [therapist] that I was talking to was really helpful. But as we're talking, I started realizing that they were just things on a deeper level that I needed, like spiritually.

Most participants cited financial cost as a key factor that impacted their decision to continue on the platform. As indicated in previous participant quotes, several others felt driven to end therapy due to perceived lack of helpfulness of either their provider or the broader platform experience. Critically, the decision to terminate treatment even in the absence of significant improvement may impact an individuals' beliefs about themselves and treatment (i.e., their appraisal-motivational factors) and, in turn, their likelihood of re-engaging in any treatment. This is illustrated in the IE Model with arrows from termination to appraisal-motivational factors and outcome expectancy. One participant exemplifies how an unsuccessful treatment can lead to lowered self-efficacy in the domain of DMH treatment engagement:

I felt like maybe I'm not able to really communicate well through this platform. And I mean, it truly didn't feel like a competence issue on my therapist part at all. I just felt like I wasn't really doing well with the texting.

Discussion

There exists at present no widely agreed-upon model of engagement in digital psychotherapy or explanation of the mechanisms by which engagement affects clinical outcomes in DMH. In this paper, we synthesize the HAPA and LIM frameworks along with interpersonal constructs from face-to-face psychotherapy process-outcome research to offer an Integrative Engagement Model of digitally-delivered psychotherapy. While our findings emerged from user focus groups of a single digital psychotherapy platform, we believe that this model is transferable to other clinician-guided DMH settings and provides a useful conceptualization of engagement and disengagement in guided DMH interventions.

While our focus group findings were generally consistent with the HAPA and LIM models, we made several changes to these frameworks to account for distinct aspects of the digital therapy user experience. First, we eliminated the construct of risk perception. In the original HAPA model, risk perception includes concerns about negative consequences from *not* engaging in a health action. In our focus groups, no participants indicated that they considered the risks of not seeking treatment as an active element in their decision making. Hypothetically, fears about deteriorating personal relationships, impacts on employment, or increased suicidal ideation from foregoing mental health treatment all could have been coded as instances of risk perception had they been voiced by any of the focus group participants. The notable absence of these comments is consistent with a quantitative meta-analysis finding that risk perceptions have small or no effects on behavior intention formation and health behavior enactments, which has led to a proposed truncated HAPA model that does not include risk perception [16].

Second, we found it necessary to incorporate interpersonal constructs such as the therapeutic alliance to adequately model the relational drivers of digital therapy engagement. Virtually every participant in the focus groups commented that their ability to connect with their therapist was a deciding factor in their treatment. Accordingly, in the IE Model, the platform itself was reconceptualized from a treatment in its own right to a *treatment conduit* that facilitated access to a *helping individual*. In other words, users did not so much see themselves as engaging with a *platform* as much as in a

healing relationship. The platform generally functioned best by removing barriers to access and expanding the selection of providers and treatment options. Concerns over treatment were often related to therapist factors (e.g., lack of responsiveness; lack of relevant expertise) or to relational factors (e.g., doubt over fostering an authentic relationship over digital media). When designing or evaluating digital tools, it can be tempting to focus on the tool design, but the interpersonal context of their use remains important for their success or failure and continues to need attention from researchers and designers [37]. Any model of help-seeking and health behavior in messaging therapy must consider the interpersonal factors inherent to the provision of any psychotherapy intervention to sufficiently account for the drivers of user (dis)engagement. This can inform design strategies for supporting the interpersonal relationship as well as for assessing when a client-therapist relationship is not working and shifting to a different therapist on the same platform.

Third, we incorporated the LIM, which added considerations of termination, cyclical engagement, and iterative impact of treatment experiences on the precursors to treatment decision making. Unlike many other health promotion behaviors (e.g., exercising, eating healthy foods), engaging in psychotherapy is not a lifelong endeavor. Indeed, one mark of successful psychotherapy is its timely end. Though a systematic account of the determinants of successful therapy termination is beyond the scope of the present work, two insights come about from our focus groups. First, the decision to terminate is informed by a variety of intrapsychic, relational, and external (e.g., financial) factors. Second, each digital therapy termination can be usefully framed on a continuum from wholly unsuccessful to wholly successful. Critically, digital therapy offers an ease of termination via withdrawal and re-engagement/cycling via changing providers that is not available in traditional therapy. This feature may facilitate the identification of high-quality matches and thereby lead to better outcomes, but it may also decrease client and therapists' efforts to repair ruptured therapeutic relationships. This reduction in relationship repair efforts by either therapist or client may be a step backwards, as relationship repair has been to be a central therapeutic process in face-to-face psychotherapy [38].

The IE Model offers a significant step forward in conceptualizing predictive, causal explanations for engagement and disengagement in services, and offers practical implications for mental health service providers and platforms. Our results highlight how the range of ways people might engage with even a DMH single feature (e.g., variation in messaging frequency, tempo, and length), combined with the delayed feedback that can be present in asynchronous interactions, increase the importance of designing supports for process agreement. Service providers seeking to engage clients can use messaging and design options that activate appraisal-motivational and outcome expectancy factors, such as making available online screening tools to help clients identify their needs, streamlining the treatment process to increase self-efficacy, using destigmatizing and fact-based language to improve treatment attitudes, and providing positive testimonials from relatable individuals to activate positive expectancies. Clients can be offered a chance to discuss any poor past experiences they have had with treatment to address any concerns and negative expectancies.

Participants in our study described how the immediacy of starting treatment in a DMH could be beneficial but how they might have also benefited from more reflective deliberation before selecting a platform, treatment or therapist, and here we highlight the concept of *design friction* – microboundaries that create opportunities for reflection [39,40] – and how embedding such features in DMH platforms could lead to better alignment with a client's goals and needs. Adding barriers comes with the risk, however, that fewer people will initiate treatment, and so further research is needed to assess when and what kinds of frictions are beneficial.

Also as highlighted by the IE model, resources and barriers can be carefully considered before and

during treatment to ease treatment initiation and support maintenance. Moreover, digital mental health platforms can offer design solutions for building the therapeutic alliance by dashboarding clients' goals—the jointly agreed upon tasks that therapists and clients engage in to address those goals, and clients' outcomes. Reminder systems can automatically steer attention back to the dashboard so lack of progress or potential therapeutic ruptures can be addressed in treatment before premature disengagement occurs, or so a new therapeutic match can be formed to support the client more appropriately. The model can serve as a guidepost for service providers to optimize engagement in care.

Similarly, researchers studying engagement in digital psychotherapy can now refer to a comprehensive model for articulating the barriers, facilitators, and general determinants of treatment engagement. Insufficient treatment engagement likely makes impotent many treatment studies that would otherwise prove efficacious. This model provides the factors and underlying processes that explain digital guided treatment engagement, describing many putative mechanisms driving user behavior on these platforms. This may be particularly important to understand in naturalistic DMH outcome studies, where data is often collected passively and remotely. In these contexts, the drivers of engagement in DMH research (e.g., filling out self-report batteries) may largely overlap with drivers of treatment engagement.

Limitations

The present study has several limitations. First, the focus group size ($n = 24$) was too small to serve as an exhaustive sample of the varieties of user experiences on digital therapy platforms. Our focus group participants described a highly diverse range of experiences and engagement trajectories, and it is quite possible that a larger sample would have uncovered more constructs or otherwise led researchers to alter the IE Model. The focus group sample was also non-random and, like any study using actively collected data, was likely impacted by selection bias towards people who are willing to engage in focus groups. Further, our reliance on focus group data precludes us from considering factors that individuals either do not have conscious awareness of (e.g., latent negative attitudes towards treatment), or do not feel comfortable disclosing in the focus group setting (e.g., a preference for a provider with a similar ethnic background). These limitations may have led researchers to oversimplify some facets of the proposed IE Model. For instance, it is not clear whether self-efficacy in the context of digital therapy treatment-seeking and engagement can be usefully segmented into *technical self-efficacy* and *relational self-efficacy*, and it is possible that further research will confirm that there is a useful conceptual difference in this case. Similarly, there remain open questions regarding the boundaries demarcating both IE Model phases and IE Model constructs, which we leave to future work. Perhaps most critically, these preliminary findings are derived from focus groups of users on a specific two-way asynchronous digital messaging platform; any extension of the IE Model to other DMH contexts should be undertaken cautiously and on an exploratory basis. It is therefore unknown whether this model applies to other types of DMH interventions, such as mental health chatbots (e.g., Woebot, Wysa) or other digital psychotherapy platforms.

Future Directions

With the IE Model as a theoretical backdrop, future research on the question of engagement in digital therapy falls into at least three categories. First, it is necessary to test the proposed IE Model using quantitative longitudinal data collected on users' platform experiences. Given the many interacting constructs proposed in this model, dynamic structural equation modeling appears to be an especially

fruitful and fitting data analytic procedure. Second, it is critical to observe which factors mediate engagement and develop micro-interventions (e.g., 'nudge' notifications or design frictions) that can effectively target these factors. Third, work could be done to extend the IE Model so that it can be validly applied to digital mental health contexts involving lay practitioners (e.g., internet-based peer-support groups). This latter research direction indicates the utility of holding additional exploratory focus groups in other DMH intervention contexts, using the IE Model as a preliminary and non-definitive conceptual guide. Together, these future lines of research point in the direction of a robust and empirically validated model of engagement and action in the guided DMH, which could allow intervention scientists to optimize user engagement, individualize intervention strategies, improve user experiences, and ultimately enhance mental health outcomes.

Conclusion

In the present study, we described our analysis of five digital therapy user focus groups. We synthesized our results using constructs from health science's Health Action Process Approach (HAPA), design science's Lived Informatics Model (LIM), and key interpersonal constructs from face-to-face psychotherapy research. We found that users' self-reported engagement trajectories in digital therapy varied widely over the same platform, but were principally informed by intrapsychic factors (e.g., self-efficacy, outcome expectancy), interpersonal factors (e.g., the therapeutic alliance and its rupture) and external factors (e.g., treatment costs). We proposed a synthesis of these constructs in the Integrative Engagement (IE) Model of Digital Therapy, and outlined the hypothesized connections between constructs found in these three distinct research frameworks.

Acknowledgements

Conflicts of Interest

JZ, TDH, and NF are employed by Talkspace, Inc. JW and BL was employed by Talkspace, Inc. All other authors declare no conflicts of interest.

Abbreviations

DMH: digital mental health
HAPA: health action process approach
IE: integrative engagement
LIM: Lived Informatics Model

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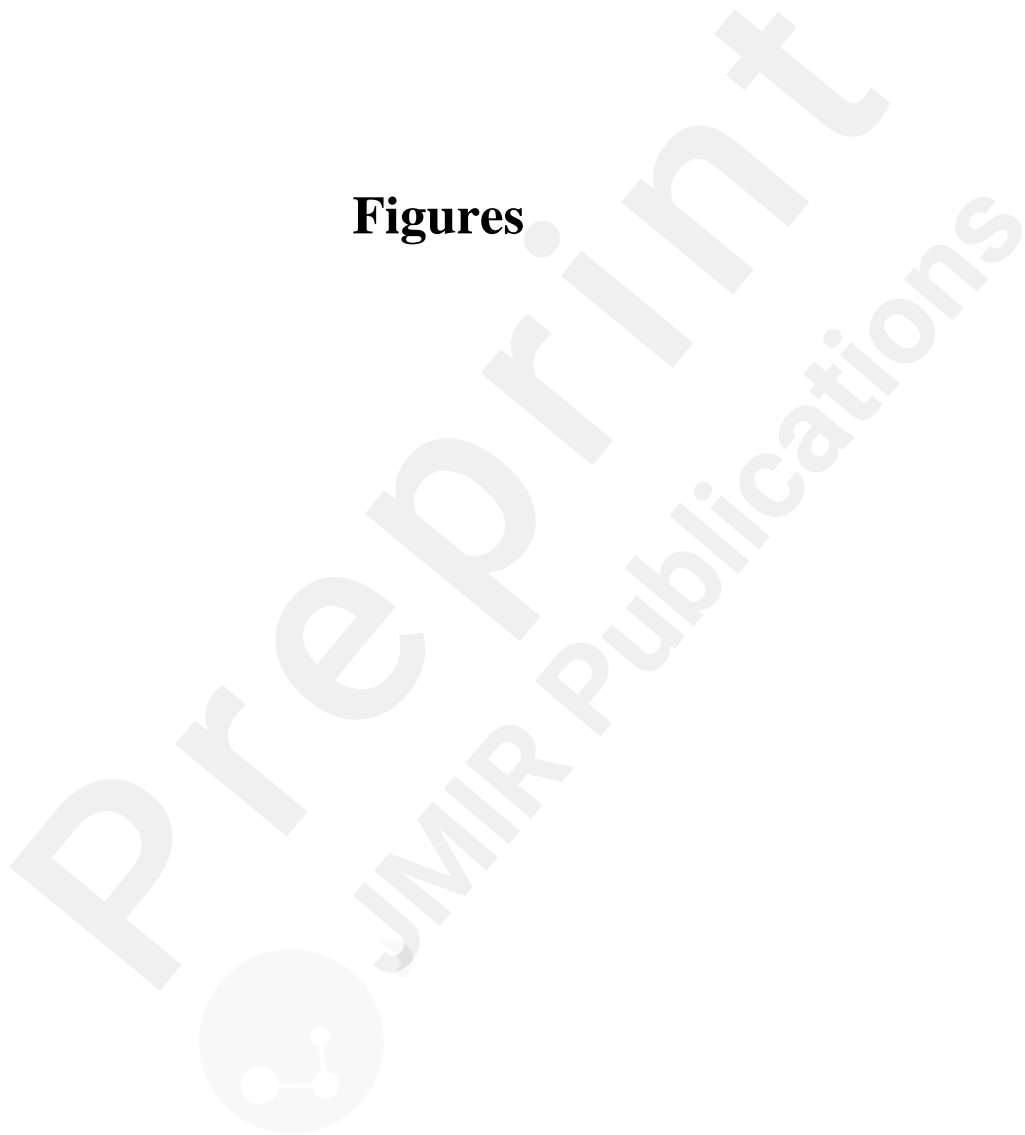
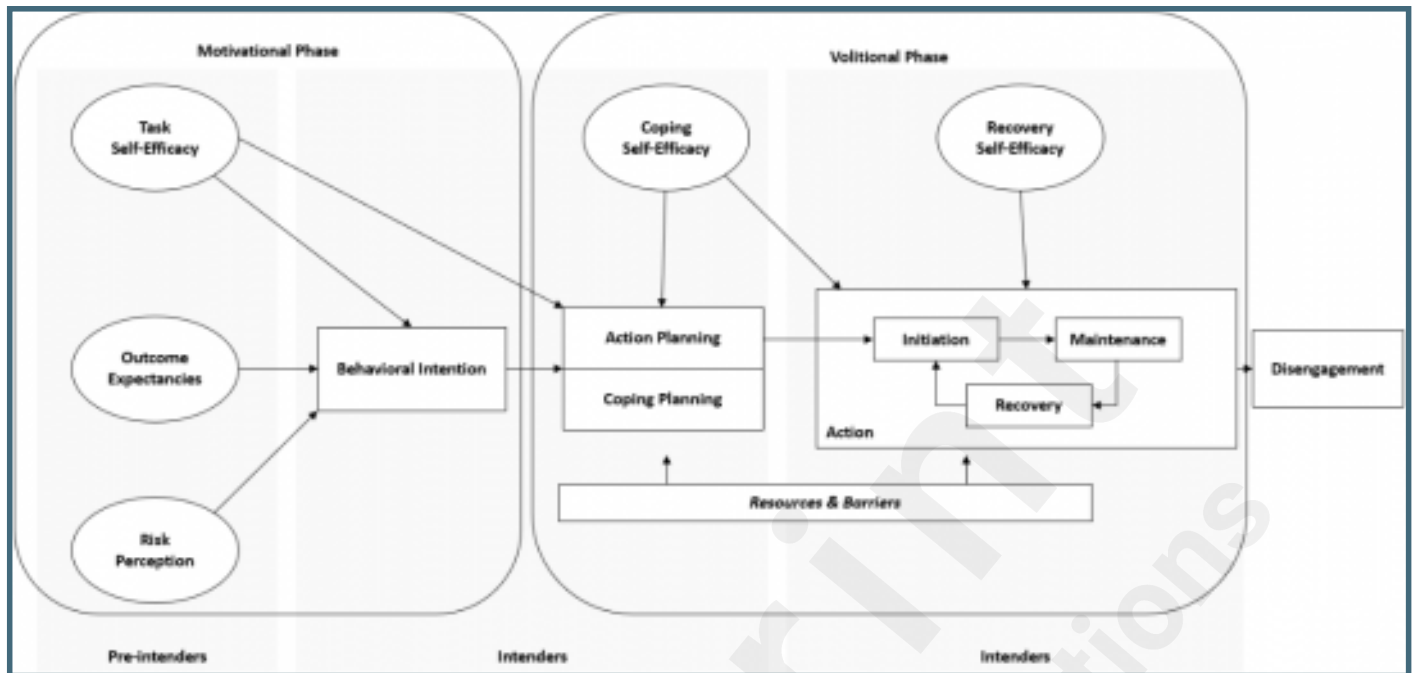Computing Machinery; 2019 [cited 2022 Jul 25]. p. 41–44. [doi: 10.1145/3335082.3335106]
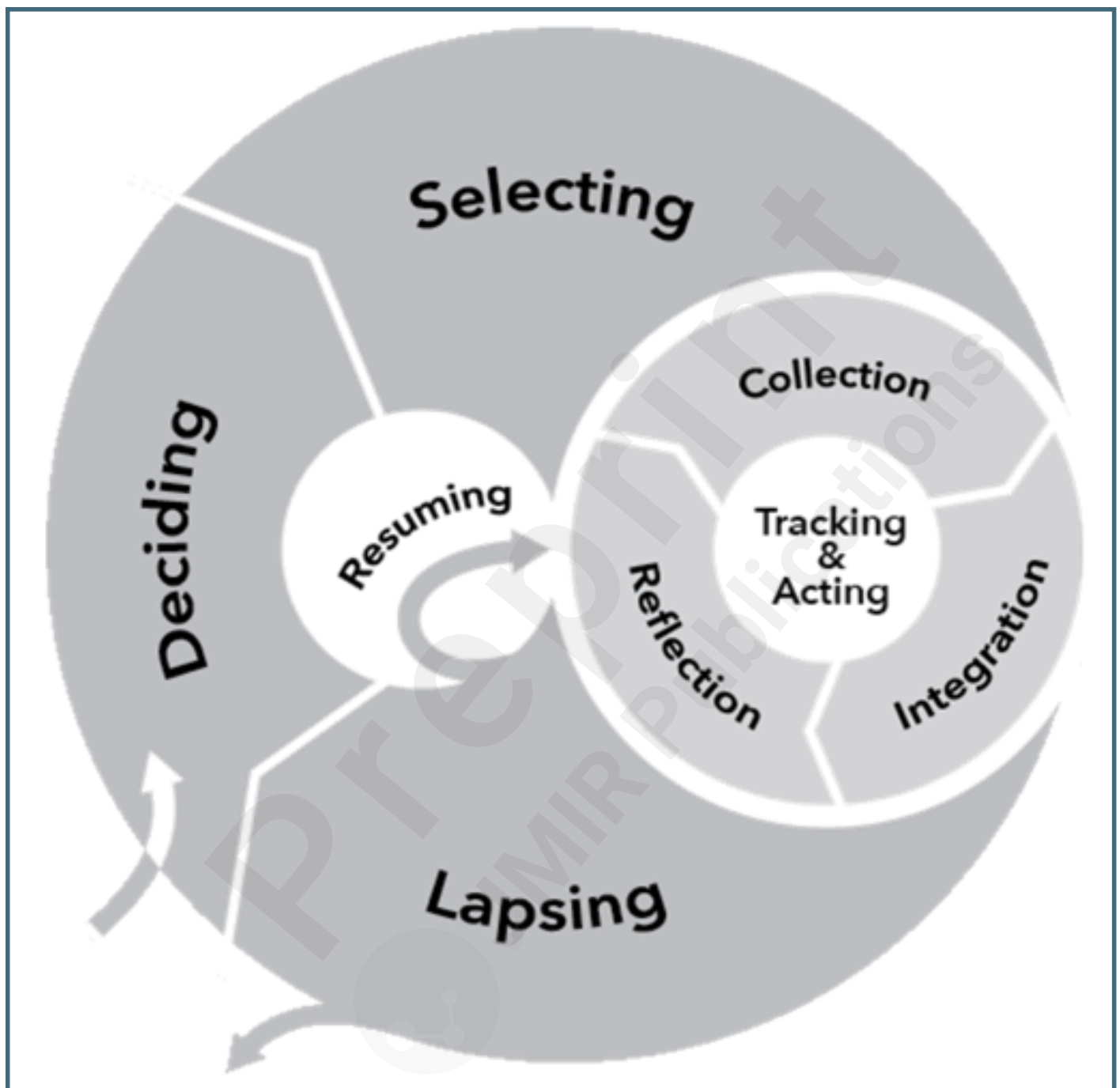
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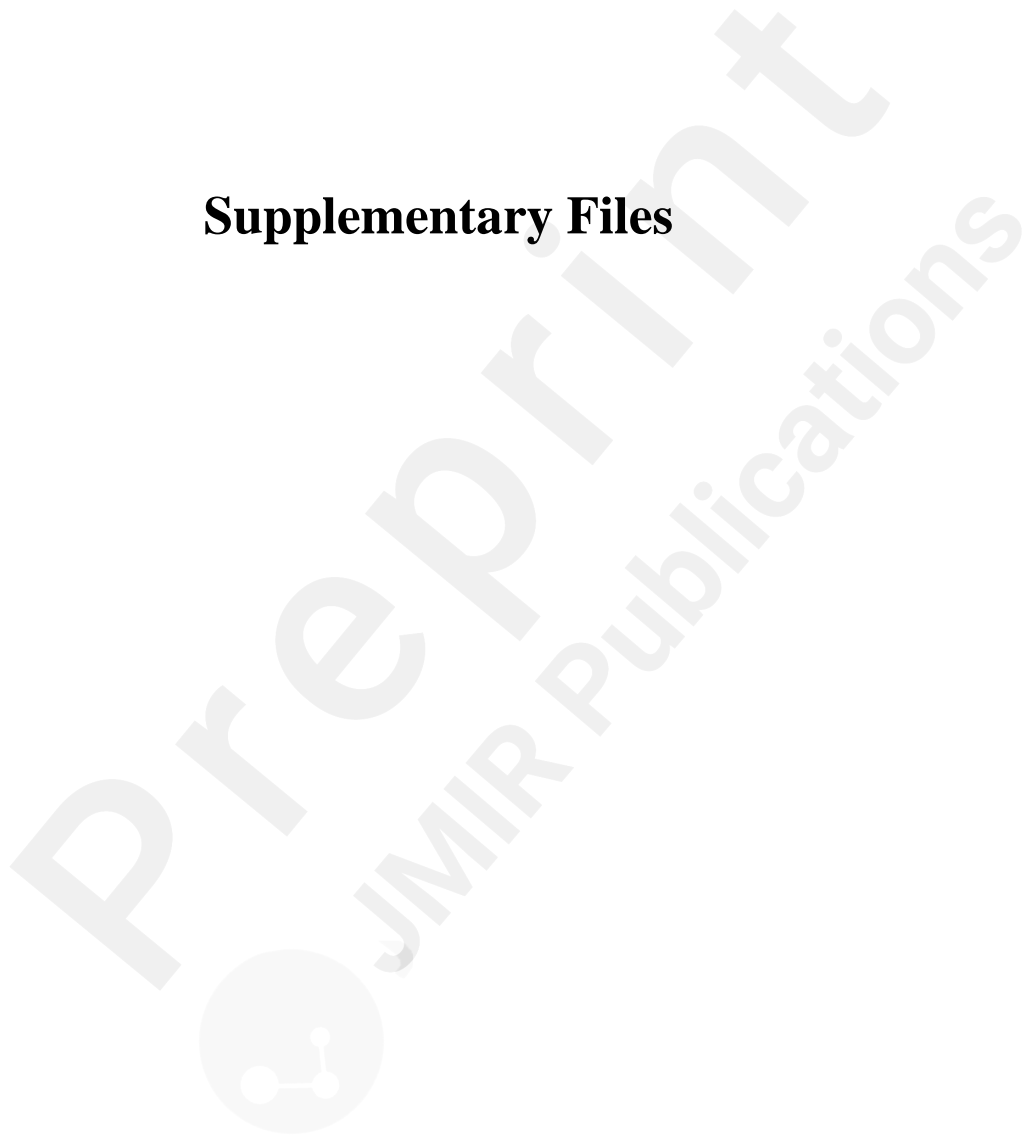
Figures

The Health Action Process Approach describes a multiphasic approach to behavior change.
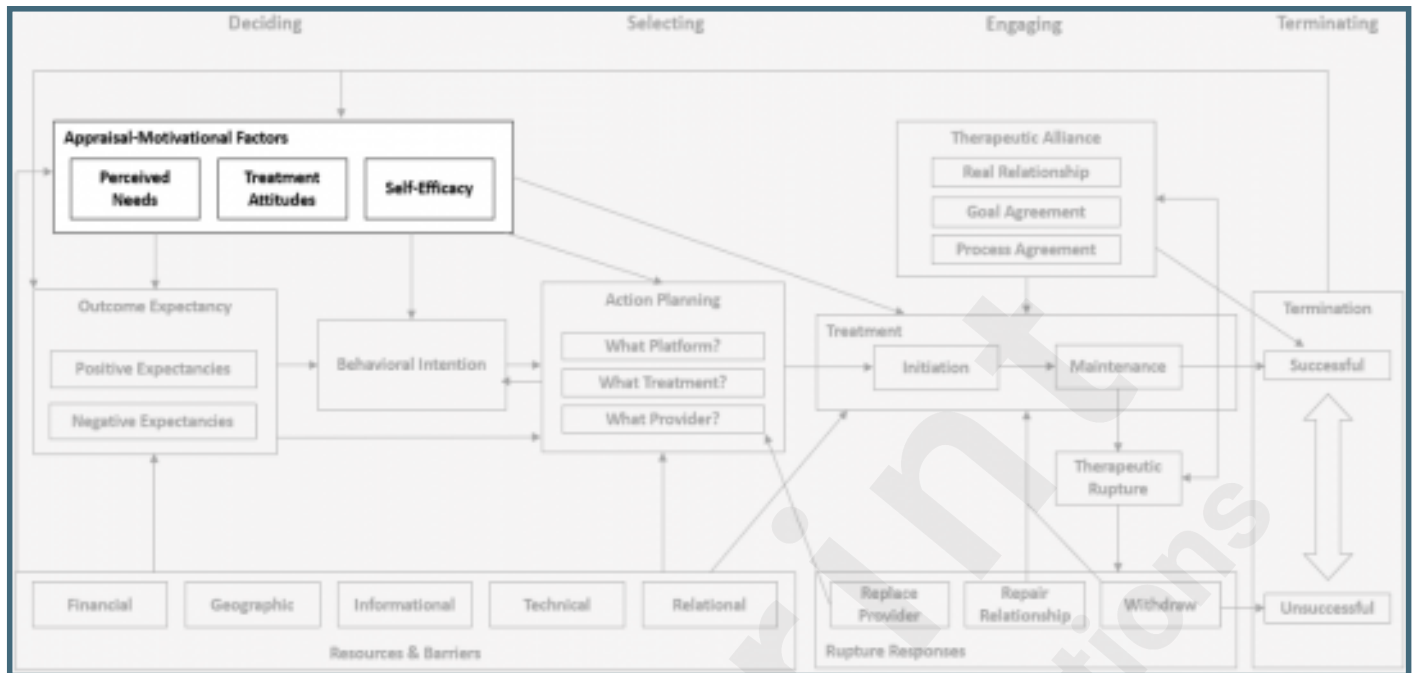
The Lived Informatics Model (LIM) emphasizes the importance of deciding to engage in an intervention, selecting tools, disengagement, and resumption alongside the activities within a particular intervention.
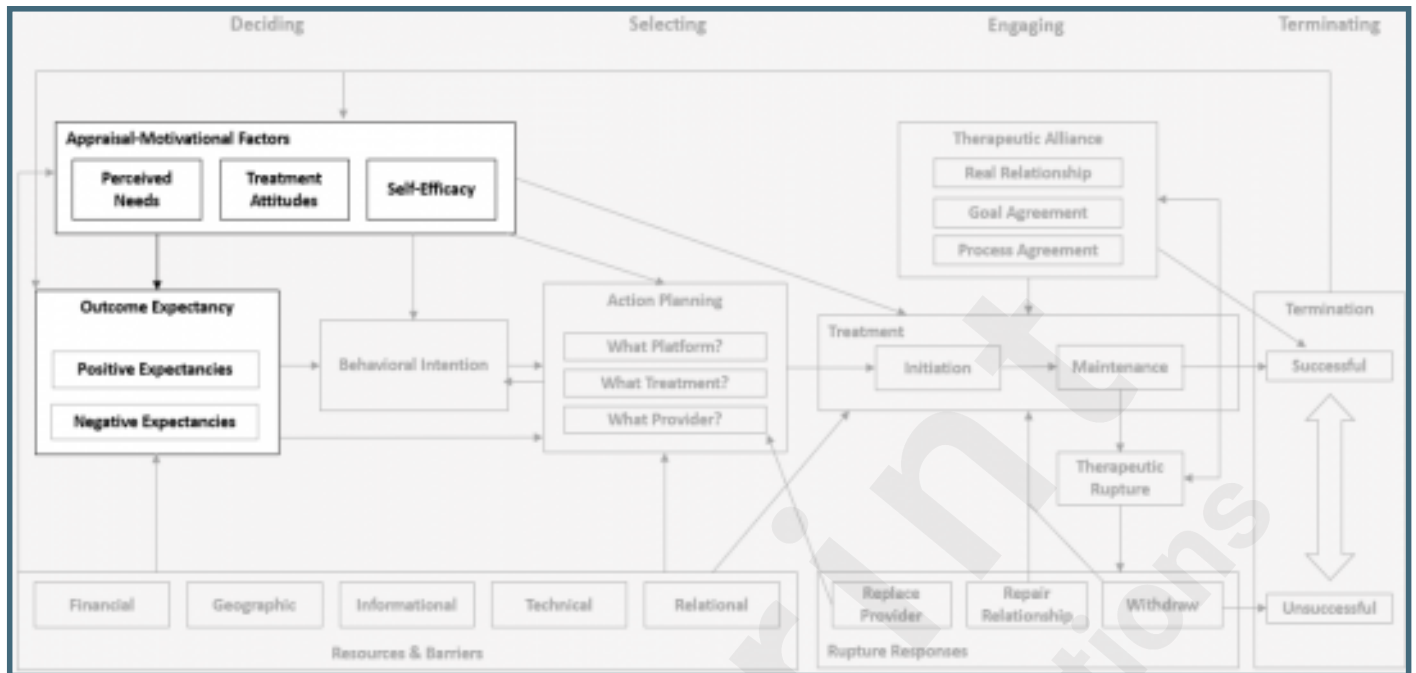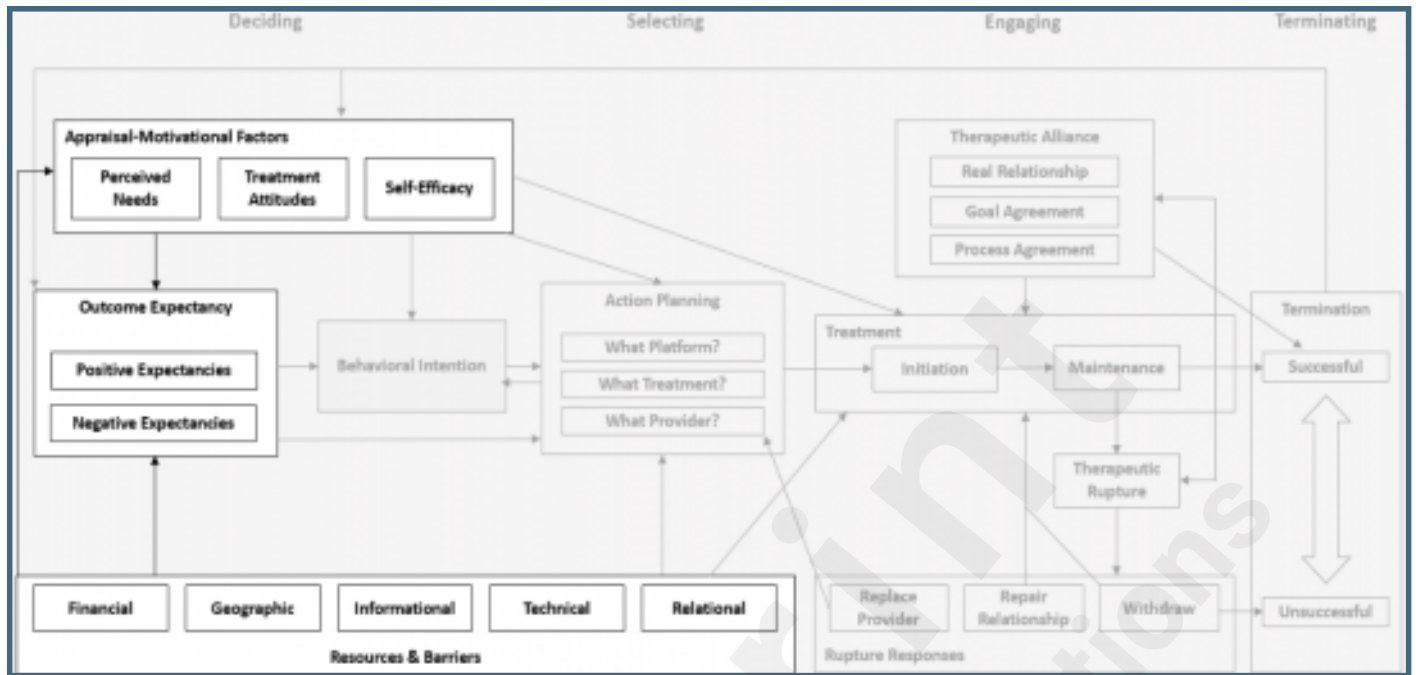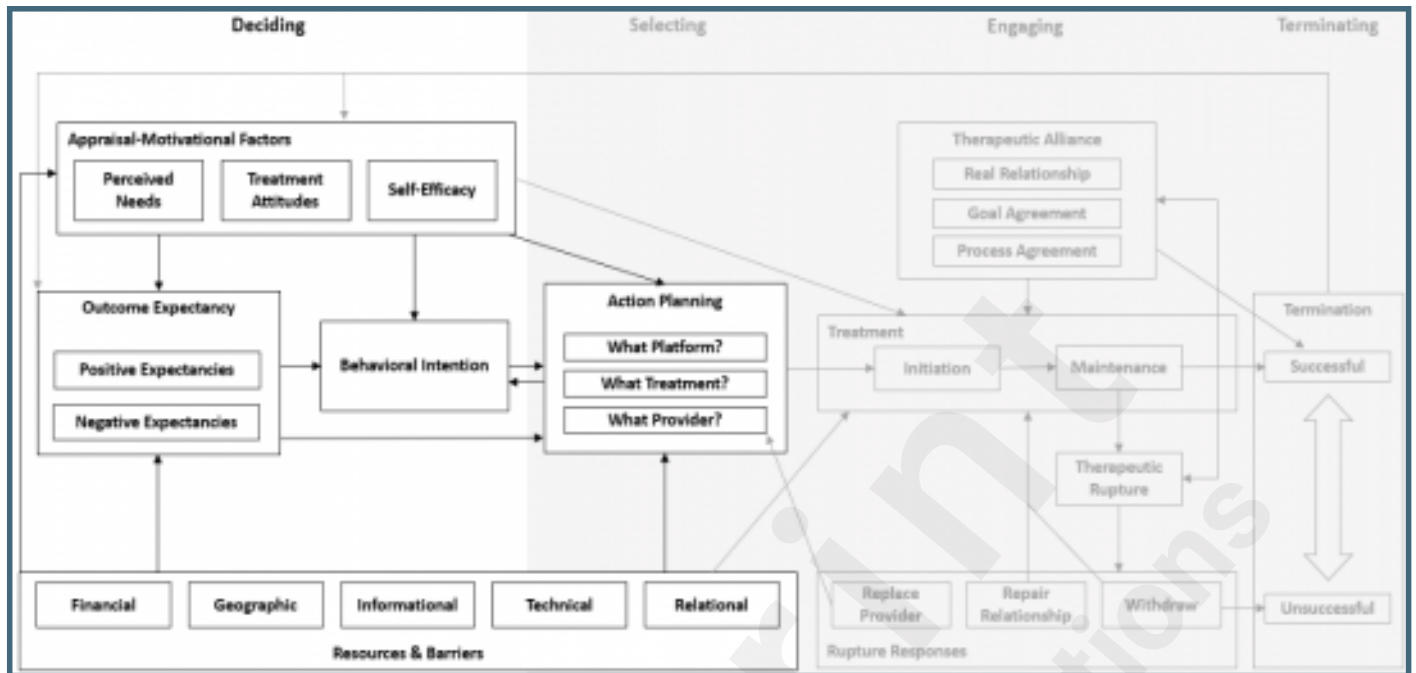
The Integrative Engagement (IE) Model.
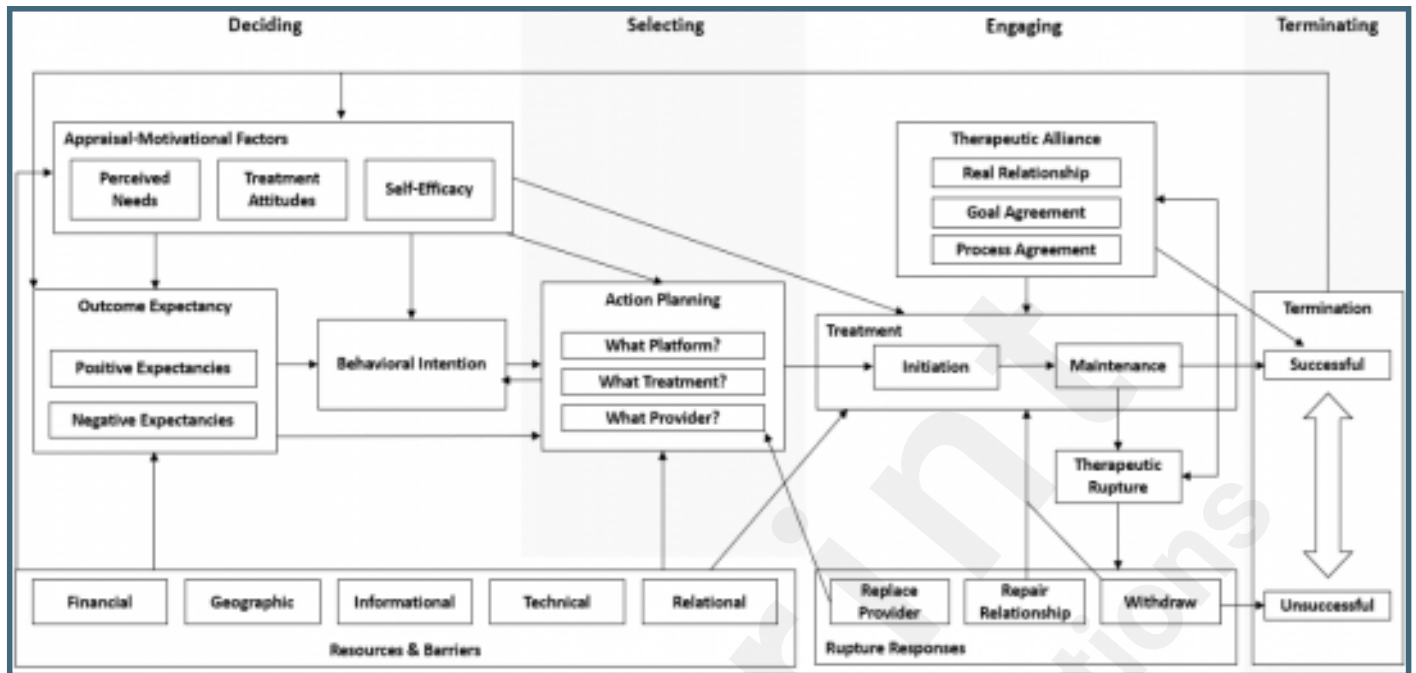
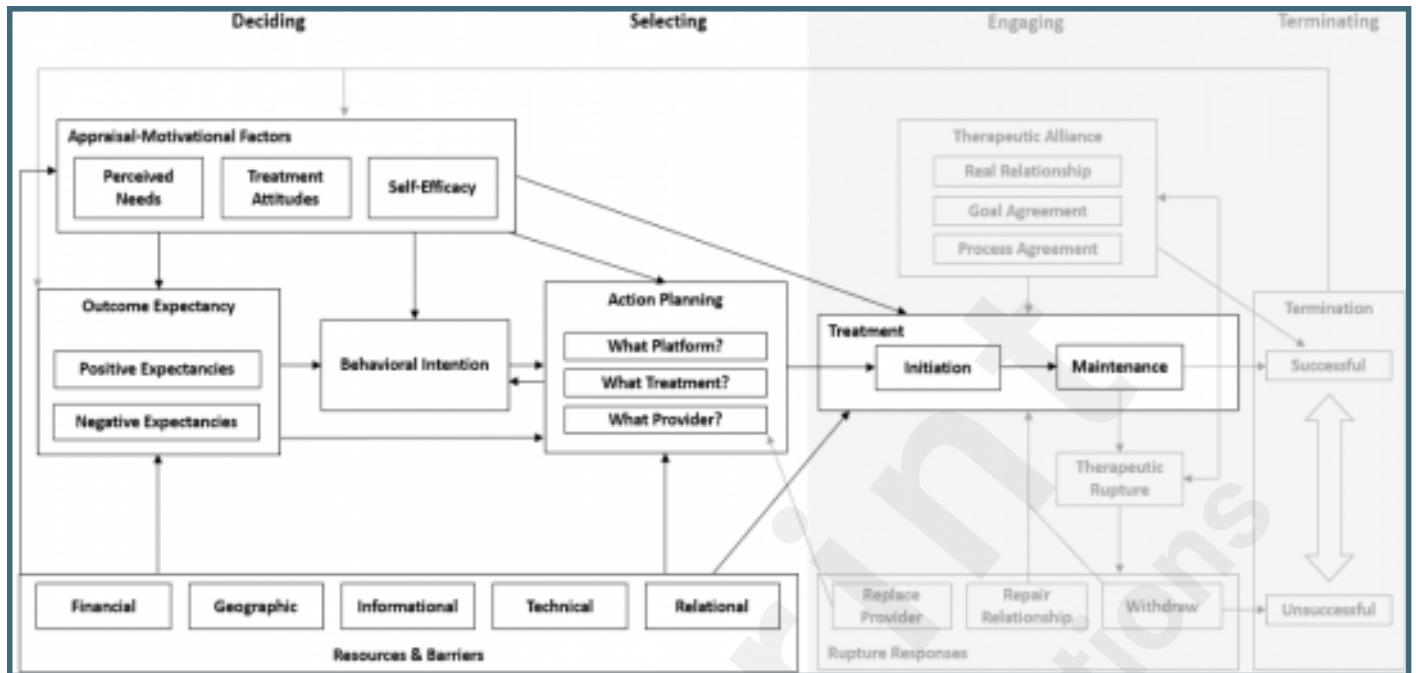IE Model – Appraisal Motivational Factors.

IE Model – Outcome Expectancies.
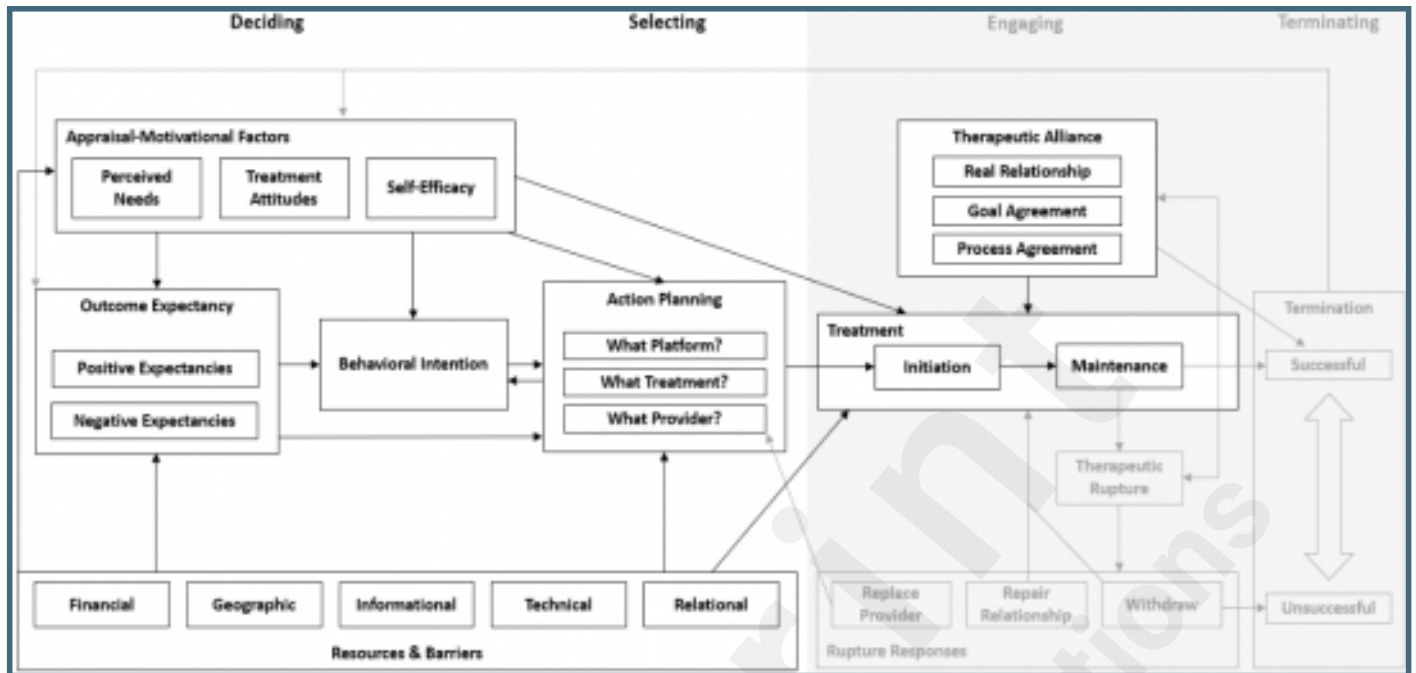
IE Model – Resources & Barriers.
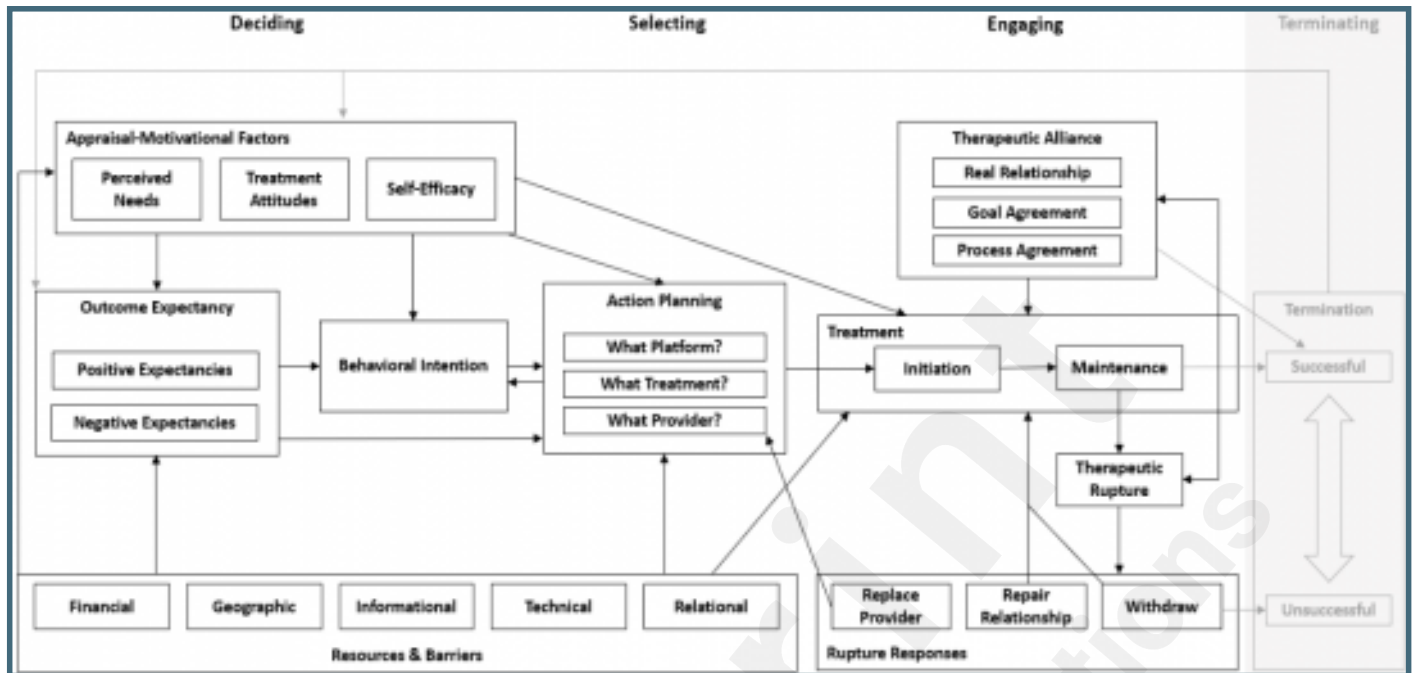
IE Model – Action Planning.

IE Model – Treatment.

IE Model – Therapeutic Alliance.

IE Model – Therapeutic Rupture & Responses.

IE Model – Termination.