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The development of a self-report scale to assess therapists' acceptance of telepsychotherapy

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Abstract

Objective: We aimed to develop a self-report measure of therapist acceptance of telepsychotherapy based on the Unified Theory of Acceptance and Use of Technology (UTAUT) framework.

Methods: Using a cross-sectional survey design, 1265 therapists completed the UTAUT-T, as well as additional questions.

Results: Confirmatory analysis indicated that the original UTAUT model did not fit the therapist context well. Exploratory factor analysis specified a better-fitting five-factor model, which showed good internal validity fit ($\chi^2 = 17{,}753.36$, RMSEA = 0.063, TLI = 0.886, SRMSR = 0.04). The five UTAUT-T subscales showed high internal consistency (Cronbach's $\alpha = 0.86$) and together predicted the intention to use online therapy in the future ($R^2 = 0.42$, $F(5, 1259) = 181.9$, $p < 0.001$).

Conclusion: The 21-item UTAUT-T offers a promising self-report measure of therapist acceptance of telepsychotherapy and intention towards using it in the future. Future studies on the convergent and predictive validity of the UTAUT-T are warranted.

KEYWORDS

future intention, measure development, telepsychotherapy, therapists, UTAUT

1 | INTRODUCTION

In the field of mental health, there has been an increasing effort over the past few decades to integrate technology into routine care. Despite these efforts and the multiple well-known advantages of telemental health, therapists have often been reluctant to use technology in their psychotherapy practice (Perry et al., 2020), due to various practical, financial, and implementation challenges (see Brooks et al., 2020; Connolly et al., 2020). The physical distancing requirements in response to the spread of the COVID-19 pandemic resulted in an en masse transition from in-person psychotherapy to online psychotherapy delivered remotely. Online psychotherapy may reflect both synchronous and asynchronous online interventions, as well as online self-help programs, and telepsychotherapy (Hanley & Wyatt, 2021; Machluf et al., 2021; Nadan et al., 2020; Nuttman-Schwartz & Shaul, 2021).

For the purposes of the present study, we will focus on telepsychotherapy, defined as psychotherapy sessions provided synchronously online via videoconferencing (Markowitz et al., 2020; Poletti et al., 2020; Rosen et al., 2020; Toumarides, 2021; Van Daele et al., 2020). Although telepsychotherapy is a commonly used term, other terms for the same type of online therapy include virtual psychotherapy (Toumarides, 2021), telemental health via videoconferencing (Connolly et al., 2020; Perry et al., 2020), video psychotherapy (Smith et al., 2021), synchronous digital therapy (Helps & Le Coyte Grinney, 2021), and virtual therapy (Jones et al., 2020).

1.1 | Attitudes towards telepsychotherapy

This sudden transition to telepsychotherapy due to the pandemic provides a unique opportunity to examine therapists' attitudes towards telepsychotherapy at a large scale, and make predictions about the uptake of telepsychotherapy in the future. Therapists' attitudes towards telepsychotherapy have been reported both pre-pandemic and since the pandemic. In recent years, some therapists, for example, have expressed concerns about telepsychotherapy being less effective than in-person therapy (Brooks et al., 2013; Perry et al., 2020), telepsychotherapy not being reimbursed by insurance companies, or having a negative impact on the therapeutic alliance and the ability to read and communicate emotions, as well as the reduced ability to deal with issues regarding patient safety (Connolly et al., 2020). Since the sudden transition to telepsychotherapy during the pandemic, additional concerns have been reported, including the lack of preparation and training in how to provide high-quality telepsychotherapy, concerns about patient privacy, confidentiality, and technological glitches (e.g., Aafjes-van Doorn et al., 2020; Békés, Aafjes-van Doorn, Luo, et al., 2021; Feijt et al., 2020; Neven, 2020; Phillips et al., 2021). Initial studies have already investigated views and attitudes towards telepsychotherapy during the pandemic (e.g., Békés & Aafjes–van Doorn, Prout, et al., 2020; Maurya et al., 2020; Nuttman-Shwartz & Shaul, 2021; Phillips et al., 2021). However, to our knowledge, there is no comprehensive measure that would assess therapists' acceptance of using videoconferencing technology for providing psychotherapy.

1.2 | Future use of telepsychotherapy

On one hand, it is possible that this temporary change in therapy format might lead to a better integration of telepsychotherapy into traditional services in the future, where in-person psychotherapy and telepsychotherapy might both be available to patients either hybrid within a treatment, or per treatment in accordance with patient preference (Van Daele et al., 2020). Indeed, there is accumulating evidence showing that the reasonably positive experiences with telepsychotherapy during the pandemic have increased the likelihood that therapists will continue to use this online treatment format in the long run (Boldrini et al., 2020; Korecka et al., 2020). On the other hand, it is also possible that once the pandemic related restrictions have been lifted, telepsychotherapy might be seen as a less preferable, and less effective treatment option research conducted during the pandemic shows that even

though therapists had a reasonably favorable experience with telepsychotherapy during the pandemic (Békés & Aafjes-van Doorn, 2020; Humer et al., 2020) many therapists remain undecided or unlikely to continue using telepsychotherapy post-pandemic (Békés & Aafjes-van Doorn, 2020; Machluf et al., 2021). These studies found that age (Cioffi et al., 2020), clinical experience (Békés & Aafjes-van Doorn, 2020; Nuttman-Shwartz & Shaul, 2021) previous experience with using telepsychotherapy (Békés & Aafjes-van Doorn, Prout, et al., 2020; Boldrini et al., 2020), experienced challenges (Békés, Aafjes-van Doorn, Luo, et al., 2021; Békés, Aafjes-van Doorn, Zilcha-Mano, et al., 2021), number of telepsychotherapy patients treated (Korecka et al., 2020), and psychotherapy orientation (Humer et al., 2020) were prominent factors that were related to therapists' attitudes towards telepsychotherapy.

The sudden switch to remote therapy format also posed various additional challenges to adapt to telepsychotherapy and use it in an optimal manner, such as lack of training and experience with providing telepsychotherapy, issues with patient privacy, worries about confidentiality, technological glitches, etc., which might hinder the continued utilization of telepsychotherapy once the pandemic ends (e.g., Békés, Aafjes-van Doorn, Luo, et al., 2021; Békés, Aafjes-van Doorn, Zilcha-Mano, et al., 2021; Feit et al., 2021; Neven, 2020; Phillips et al., 2021). Therefore, the current COVID-19 circumstances provide an important opportunity, an experiment in nature (Craig et al., 2012), to understand the factors that impact therapists' acceptance of telepsychotherapy technology, as well as their intentions of using it in the future.

1.3 | The need for a measurement tool

Despite the relevance of therapists' views about telepsychotherapy, especially since the pandemic, no self-report scale about therapists' acceptance of telepsychotherapy appears to exist. We are aware of two previously developed self-report measures that assess therapists' attitudes towards online therapy, but these do not assess therapists' attitudes towards telepsychotherapy. The APOI (Attitudes towards Online Interventions; Schröder et al., 2015) measures attitudes towards (usually cognitive-behavioral) interventions delivered as structured online self-help or guided programs. The other measurement scale, ETAM (E-Therapy Attitude Measure; Apolinário-Hagen et al., 2017) examines public attitudes towards online therapies in general, where individuals not engaging in therapy appraise statements about proposed benefits of online therapies for people with mental health problems (Apolinário-Hagen et al., 2017, 2018). Thus, although somewhat relevant, neither of these measurement scales are applicable to therapists' views on providing telepsychotherapy. Notably, we identified several empirical studies that assessed therapists' attitudes towards telepsychotherapy during the pandemic; however, these studies used self-designed individual items that were not psychometrically tested or part of a standardized measure (Boldrini et al., 2020; Cioffi et al., 2020; Humer et al., 2020; Korecka et al., 2020).

Thus, to keep up with the changing landscape of telepsychotherapy provision during the pandemic, the need for a comprehensive standardized measure of therapists' acceptance of telepsychotherapy has become especially salient. In the present study, we introduce a novel comprehensive self-report measure for therapists, which is based on a widely accepted and well-researched model of attitudes towards using technology, the Unified Theory of Acceptance and Use of Technology (UTAUT) framework (Venkatesh et al., 2003).

1.4 | Attitudes towards technology: UTAUT model

The UTAUT framework (Venkatesh et al., 2003) offers a comprehensive model of acceptance and subsequent utilization of technological innovations. The UTAUT was developed to provide a useful tool to assess the likelihood of acceptance of new information technology by its users and to help clarify the factors that impact the acceptance of new technology, and thus to enable to proactively target and train professionals to increase acceptance of technology.

The original UTAUT model was developed based on an empirical comparison of eight prominent models of determinants of new technology acceptance and integrates the most empirically established elements of these models into a unified model, the UTAUT model (Venkatesh et al., 2003). The UTAUT model has been empirically validated and has been shown to predict technology adaption, acceptance, and usage across various fields. More specifically, a quick search for the keyword "UTAUT" in the paper title published in 2020 at the time of the writing on this paper (2020 September) yielded 3170 results on Google Scholar. Although the UTAUT model was originally developed to be applied in a business environment, it has been adapted to various fields that used technological innovations, in addition to business (Chauhan & Jaiswal, 2016). This has included academia (Gruzd et al., 2012), universities (El-Gayar et al., 2011), occupational and physical therapy (Liu et al., 2015) and has recently been suggested as a model to conceptualize therapists' attitudes about online therapy via videoconference (Connolly et al., 2020). For a review of UTAUT studies see Venkatesh et al. (2016) and Dwivedi et al. (2020).

According to the original UTAUT model, four factors determine the use of technology – Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. "Performance Expectancy" reflects how much the individual believes that using the technology will help them to perform better. "Effort Expectancy" refers to the degree of ease associated with the use of the given technology. "Social Influence" reflects the extent to which the individual believes that important others think that they should use the technology. Finally, "Facilitating Conditions" describes the perceived level of available professional and technical support in using the technology. Although these four factors are relevant in and of themselves, they have also been found to account for approximately 70% of variance in the explicitly declared intent and plan to use video-conferencing technology in the future (i.e., "Behavioral Intention" in the UTAUT model (Venkatesh et al., 2003; Wu et al., 2007), and 50% of variance in subsequent technology use (Venkatesh et al., 2012). Besides these determining factors, age, gender, and voluntariness of using the technology may act as moderators (Venkatesh et al., 2012).

In the subsequent adaptations, the original UTAUT framework was modified to suit different professions of interest. The original four-factor UTAUT model was also extended with various additional factors deemed relevant to these different professional contexts (Venkatesh et al., 2016). For example, Anxiety about using technology (i.e., the factor "Anxiety" in the extended model) has been found to be a highly relevant aspect of technology acceptance as an important inhibitory variable in contexts where the use of technology is voluntary (e.g., Cenfetelli & Schwarz, 2011; Gunasinghe et al., 2020; Khechine & Lakhal, 2018). Another important factor, 'Attitude' towards using technology (the individual's overall affective reaction to using the given technology; Venkatesh et al., 2003), which was tested and dropped from Venkatesh et al. (2003) initial model, was later found to be central in predicting behavioral intentions and subsequent usage behaviors (Dwivedi et al., 2019).

1.5 | Aims

The primary aim of the present study was to develop a self-report measure of therapist acceptance of the use of telepsychotherapy via videoconferencing that builds on the literature of the UTAUT model and can be applied to the therapist profession. Specifically, we sought to: (1) Test how the factor structure of the original four-factor as well as the extended six-factor UTAUT model fits the data collected among therapists, with the 24 adapted UTAUT items (see below), through confirmatory factor analysis (CFA); and to (2) Examine the factor structure of this adapted UTAUT-therapist version in a large sample of therapists who provided telepsychotherapy during the COVID-19 pandemic, through exploratory factor analysis (EFA). In addition, we also tested whether therapists' age, gender, previous experience with conducting telepsychotherapy, and experiences with the therapeutic relationship in telepsychotherapy sessions during the pandemic moderated the relationship between acceptance of telepsychotherapy technology and intention to use it in the future.

2 | METHODS

2.1 | Participants

The sample consisted of 1265 therapists, who participated in an online survey about therapist experiences with providing telepsychotherapy during the COVID-19 pandemic. The therapists were recruited online, via professional email lists, social media, and personal contact across the United States of America, Canada, China, and Europe. Preliminary results on these samples have been published in previous reports (e.g., Békés & Aafjes-van Doorn, 2020; Békés, Aafjes-van Doorn, Luo, et al., 2021; Békés, Aafjes-van Doorn, Zilcha-Mano, et al., 2021). The data was collected between March 25 and June 29, 2020. Trainees and licensed therapists were eligible to participate if they had provided at least one telepsychotherapy session since the start of the pandemic. All potential participants were asked to read and sign the informed consent statement before they were able to commence the online survey. Participants were informed about their right to refuse to participate or withdraw from participation at any time, that their participation was voluntary, and that they would not be compensated. The online survey took approximately 30 min to complete and included individual items as well as several standardized scales regarding the therapists' wellbeing and their telepsychotherapy experiences. For the purpose of this manuscript, we report on the main outcome measure, the UTAUT-therapist version (UTAUT-T). The study was approved by Yeshiva University's Institutional Review Board. For descriptive statistics of the sample see Table 1. The participating therapists were mostly female ($n = 974$; 77.0%), their average age was 50.56 ($SD = 16.45$), and half of the sample had more than 17 years of clinical experience, with only 12.8% of therapists reporting 4 years of clinical experience or less.

2.2 | Development of the UTAUT-T

Building on the UTAUT model, which has been validated in a multitude of settings (Venkatesh et al., 2016), we developed an adapted scale that assesses therapists' acceptance of telepsychotherapy via videoconferencing, The Unified Theory of Acceptance and Use of Technology – Therapist Version (UTAUT-T). We included the items that represent the original four factors of the UTAUT: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions, (the Cronbach's α for the subscales vary between 0.68 and 0.91; Liu et al., 2015), with the additional two items regarding Behavioral Intention. In addition, we also included the items from the two factors that have shown to be important in predicting behavioral intention and actual use in previous studies relevant to the field of therapy: Anxiety and Attitudes.

We reviewed the items in the original UTAUT model (Venkatesh et al., 2003) and adapted the wording of these items to the context of psychotherapists and video conferencing technology. For example, the item "People who are important to me think that I should use the system" in the original UTAUT measure was adapted to "People who are important to me think that I should use online therapy" (Social Influence). Some other items needed more modifications. For example, in the Performance expectancy factor, the original item "Using the system enables me to accomplish tasks more quickly", was adapted to therapists as "Using online therapy saves me time and/or money" (Performance Expectancy). Moreover, in the Anxiety subscale, we included additional items reflecting common concerns about the use of video conferencing reported in the psychotherapy literature (e.g., Connolly et al., 2020). For example, we added an item on "I am concerned that online therapy will weaken the alliance" (reverse scored), and "I hesitate to use online therapy due to concerns about patient safety" (reverse scored). This resulted in a scale of 24 items, including two Behavioral Intention items.

TABLE 1 Descriptive statistics of the surveyed therapists (N = 1265)

	N	%
Ethnicity		
White European, European American	1047	83.0
Asian or Asian Indian	98	7.8
Native Hawaiian or Pacific Islander	6	0.5
Hispanic, Latinx, Spanish	38	3.0
Black or African American	11	0.9
American Indian or Alaska Native	2	0.2
Middle Eastern	19	1.5
First Nations	6	0.5
Other	34	2.7
Country (declaration of national emergency/lockdown)		
United States of America (March 13)	966	76.4
Canada (March 16)	61	4.8
Hungary (March 11)	60	4.7
Other European countries (March 9–25)	62	4.9
China (January 29)	50	4.0
United Kingdom (March 25)	31	2.5
Other	34	2.7
Licensure status		
Licensed	1082	86
Trainee	176	14
Clinical experience in years		
0–4	161	12.8
5–8	196	15.5
9–12	169	13.4
13–16	99	7.8
17 or more	637	50.5
Theoretical orientation[a]		
Psychodynamic	788	62.3
Psychoanalytic	523	41.3
Integrative	486	38.4
CBT	341	27.0
Humanistic	216	17.1
Systemic	172	13.6
Other	176	13.9

(Continues)

TABLE 1 (Continued)

	N	%
Prior experience providing telepsychotherapy		
No, never	540	42.7
Yes, once or twice	145	2.6
Yes, but only after seeing them in-person first	344	27.2
Yes, several patients	200	15.8
Prior training in telepsychotherapy (N = 847)		
Yes	148	17.5
No	699	82.5

[a]Multiple responses were allowed.

Thus, based on the UTAUT literature, the UTAUT-T items were intended to include the following aspects: Performance expectancy, Effort expectancy, Social Influence, Facilitating Conditions, Anxiety, Attitude, and Behavioral Intention. The Performance Expectancy subscale has three items regarding the perceived efficacy of telepsychotherapy. The Effort Expectancy subscale's three items about the perceived ease of using Attitudes Towards Telepsychotherapy

Therapists' attitudes towards telepsychotherapy have been reported both pre-pandemic and since the pandemic. In recent years, some therapists, for example, have expressed concerns about telepsychotherapy being less effective than in-person therapy (Brooks et al., 2013; Perry et al., 2020), telepsychotherapy not being reimbursed by insurance companies, or having a negative impact on the therapeutic alliance and the ability to read and communicate emotions, as well as the reduced ability to deal with issues regarding patient safety (Connolly et al., 2020). Since the sudden transition to telepsychotherapy during the pandemic, additional concerns have been reported, including the lack of preparation and training in how to provide high-quality telepsychotherapy, concerns about patient privacy, confidentiality, and technological glitches (e.g., Békés, Aafjes-van Doorn, Luo, et al., 2021; Békés, Aafjes-van Doorn, Zilcha-Mano, et al., 2021; Feit et al., 2021; Neven, 2020; Phillips et al., 2021). Initial studies have already investigated views and attitudes towards telepsychotherapy during the pandemic (e.g., Békés & Aafjes–van Doorn, Prout, et al., 2020; Maurya et al., 2020; Nuttman-Shwartz & Shaul, 2021; Phillips et al., 2021). However, to our knowledge, there is no comprehensive measure that would assess therapists' acceptance of using videoconferencing technology for providing psychotherapy.

The Social Influence subscale's four items ask about whether others (important people, colleagues, professional organization) think the respondent should use telepsychotherapy. The Facilitating Conditions subscale has three items about having technical and professional knowledge and/or help readily available about telepsychotherapy. The Attitude subscale consists of three items that describe the hedonic value and positive feelings about telepsychotherapy (convenience, enjoyment, being a good idea). The Anxiety subscale includes six items regarding feelings of apprehension or concerns about telepsychotherapy (Compeau et al., 1999). Finally, the two items on the Behavioral Intention subscale ask about intent and plan to use telepsychotherapy in the future. For an overview of the exact item wordings, please see Table 2.

Similar to the original UTAUT measure, items of the UTAUT-T are scored on a Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), with higher scores indicating more positive views (i.e., high level of acceptance) towards telepsychotherapy technology, with the exception of the Anxiety subscale, where a higher score indicates more concerns.

TABLE 2 Factor loadings for the 22 UTAUT-T items

Item	(1) Therapy Quality Expectancy	(2) Ease of Use	(3) Pressure from Others	(4) Professional Support	(5) Convenience
5R I am concerned that it is difficult to feel connected with my online patients.	0.77	0.02	0.07	0.04	0.19
2 The quality is the same as in-person therapy.	0.75	0.09	0.08	0.01	0.10
16 I enjoy doing online therapy.	0.69	0.04	0.04	0.03	0.32
9R I am concerned whether we can communicate emotions online.	0.68	0.03	0.07	0.01	0.12
21R Online therapy is not compatible with the way I generally provide therapy.	0.65	0.03	0.06	0.05	0.05
1 I find online therapy works well for patients.	0.62	0.03	0.03	0.15	0.14
12R I feel apprehensive about using online therapy.	0.55	0.25	0.02	0.07	0.15
6 I find providing online therapy easy.	0.45	0.25	0.03	0.03	0.27
18 Using online therapy is a good idea.	0.43	0.04	0.21	0.30	0.13
15 It is easy to learn how to provide it.	0.08	0.70	0.03	0.05	0.22
13 Using online therapy technology is clear and understandable.	0.05	0.63	0.03	0.08	0.07
24R It is somewhat intimidating for me.	0.19	0.59	0.00	0.06	0.24
20 I have the professional and technical knowledge necessary to do online therapy.	0.07	0.50	0.05	0.26	0.03
23R It scares me that I cannot provide as much confidentiality as in in-person therapies.[a]	0.22	0.38	0.07	0.06	−031
17 People who are important to me think that I should do online therapy.	0.01	0.02	0.86	0.01	0.04
4 People who influence me think that I should use online therapy.	0.03	0.06	0.80	0.01	0.00
22 Colleagues and leaders in the field are supporting online therapy.	0.02	0.03	0.00	0.78	−0.05

(Continues)

TABLE 2 (Continued)

Item	(1) Therapy Quality Expectancy	(2) Ease of Use	(3) Pressure from Others	(4) Professional Support	(5) Convenience
8 My professional organization supports using online therapy.	0.02	0.01	0.10	**0.59**	0.06
10 A specific person/group is available to help me if I have difficulties with online therapy[a]	0.01	0.05	0.03	0.28	0.01
3 Online therapy saves me time and/or money.	0.12	0.08	0.12	0.07	**0.56**
14 Working online is more convenient.	0.11	0.31	0.12	0.04	**0.51**
19R I hesitate to use online therapy due to concerns about patient safety.[a]	0.30	0.28	0.10	0.01	0.34

Note. Numbers in bold represent factor loadings above 0.40. Only 19 out of 22 items loaded on these five factors. R = reverse item.

[a]Items that did not load on any factor.

TABLE 3 Mean scores and zero-order correlations for the identified UTAUT-T subscales (N = 1265)

Factor	M (SD)	Min–Max	1	2	3	4	5
1. Therapy quality expectancy	3.09 (0.60)	1.33–4.67					
2. Ease of use	3.64 (0.72)	1.25–5.00	0.49***				
3. Pressure from others	2.89 (1.01)	1.00–5.00	0.26***	0.14***			
4. Professional support	3.82 (0.74)	1.00–5.00	0.17***	0.21**	0.37***		
5. Convenience	3.24 (1.00)	1.00–5.00	0.34***	0.27***	0.27***	0.10***	
6. Behavior intention	3.12 (1.17)	1.00–5.00	0.58***	0.34***	0.36***	0.24***	0.39***

***$p < 0.001$.

2.3 | Moderator variables

Therapists' age, gender, and previous experience with conducting telepsychotherapy were assessed by individual questions. Perceived quality of the therapeutic relationship in telepsychotherapy sessions was assessed with the standardized Working Alliance Inventory – Short Revised – Therapist (WAI-SRT; Hatcher & Gillaspy, 2006). The WAI-SRT is a 12-item scale, based on Bordin's (1979) pantheoretical model of the working alliance, including the bond between the patient and the therapist, and the agreement on task and goal. The WAI-SRT uses a 5-point Likert scale, ranging from *seldom* (1) to *always* (5) and has been validated by associations with other alliance measures and by prediction of therapy outcomes (e.g., Munder et al., 2010; Zilcha-Mano, 2017). In the present study, therapists were asked to complete the WAI-SRT regarding their general experience in their online sessions during the pandemic. Cronbach's α for the total scale in the current sample was 0.85.

2.4 | Data analyses

Data were thoroughly cleaned before analysis and screened for random responses on the outcome measures by checking for duplicate responses, skewed results, and data inconsistencies. We used graphical methods (scatter, box plots, and histograms) for detecting outliers. No participant was removed due to a suspicious responding pattern. All statistical analyses were performed with R 3.3.2 (R Core Team, 2016) using the psych (Revelle, 2016) packages. Due to the forced response setting in the survey, there was no missing data.

A combination of confirmatory and exploratory factor analyses was used to evaluate possible factor structures for the UTAUT-T. CFA was used to test the published factor structure of the original as well as the extended UTAUT models in the sample of collected therapist responses.

EFA was used to identify latent constructs and to arrive at a parsimonious representation of the associations among measured variables (rather than Principal Component Analysis, which is used when the goal is data-reduction). We conducted the EFA on the total sample of 1265 therapists, which is a more than adequate sample size for conducting such analyses (Bentler, 2007; Fabrigar et al., 1999) and on the 22 items of the UTAUT-T. Of note, the two Behavioral Intention items regarding the intention of using telepsychotherapy in the future ("I intend to use online therapy after the end of the pandemic" and "I plan to use online therapy after the end of the pandemic)" were not included in the model. These two items were excluded from the EFA because they were hypothesized to be predicted by the other factors in the measure, however, these items are to be included in the final measure. In line with the development of the UTAUT-T, the EFA, as a data-driven approach, provides procedures for determining an appropriate number of factors and pattern of factor loadings primarily from the data.

Given that there was an insufficient basis to specify an a priori model, no a priori number of common factors were specified, and no restrictions were placed on the patterns of relations between the common factors and the measured variables (i.e., the factor loadings). To test whether therapists' age, gender, previous telepsychotherapy experience, and perceived therapeutic relationship in telepsychotherapy moderated the relationship between acceptance of telepsychotherapy technology and intention of future utilization, we conducted hierarchical multiple regressions, where variables that were significantly related to Behavioral Intention were included as potential moderators between the UTAUT-T and Behavioral Intention. In line with previous publications using the UTAUT model, total scores were used for the UTAUT-T calculations.

3 | RESULTS

3.1 | Confirmatory factor analysis

CFA was performed to test the original (four factors) and the extended UTAUT model (six factors) using diagonal weighted least squares estimation of the 22 items (excluding the additional two Behavioral Intention items, as these additional items are to be predicted by the UTAUT-T subscales). To judge goodness of fit, several fit statistics were used; overall χ^2, root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker–Lewis index (TLI), and the standardized root mean square residual (SRMSR). The CFA results for the original four-factor model showed that the model fitted poorly ($\chi^2 = 2693.932$, RMSEA = 0.090, CFI = 0.768, TLI = 0.694, SRMSR = 0.075).[1] For the extended CFA model, the model fit was better, but still not sufficient: ($\chi^2 = 3207.40$, RMSEA = 0.098, CFI = 0.735, TLI = 0.703, SRMSR = 0.089).

3.2 | Exploratory factor analysis

EFA was then used to identify a new model. The 22 items of the UTAUT-T (the total 24 items excluding the two items about behavioral intention), were analyzed with maximum likelihood as the factor extraction method and Promax (oblique) rotation[2] (Fabrigar et al., 1999). The scree plot, parallel analysis, eigenvalues, and Very Simple Structure (VSS; Revelle & Rocklin, 1979) were used to determine the optimal number of factors to extract. Based on the widely accepted extraction rules of Kaiser (1960) and Cattell (1965) for factor analysis results, we identified a five-factor structure for the UTAUT-T (five factors above the break point in the scree plot, see Figure 1). The parallel analysis, and fit indices in alternative models were consulted to determine that a five-factor solution was appropriate. Results indicated a good fit ($\chi^2 = 17753.36$, RMSEA = 0.063, TLI = 0.886, SRMSR = 0.04).

Following the EFA, subscales were constructed using items with factor loadings above 0.40. Other items that loaded below 0.40 were removed from the scale. The first factor (Therapy Quality Expectancy) included eight items about the views on the quality of telepsychotherapy, that is, it works well for patients, easy and enjoyable to provide, and in general, a good idea, as well as a lack of concerns about telepsychotherapy (communicating emotions in remote settings, alliance). This factor resembles Performance Expectancy in the original UTAUT model. The two items of the second factor (Pressure from Others), overlapping with UTAUT's Social Influence factor, reflect the thoughts of influential and important people the therapist "should" use telepsychotherapy technology. The items of the third factor (Ease of Use), resembling the Effort Expectancy factor in the original UTAUT model, included items regarding ease of use of telepsychotherapy, such as having the necessary technical knowledge, feeling confident, and finding it clear and understandable how to use technology. The fourth factor (Convenience) diverged from the original UTAUT model and included two items about telepsychotherapy being more convenient, saving time and money. The fifth factor (Professional Support) was also unique to this therapist context and represented the experienced professional and peer support from organizations and colleagues. Three items did not
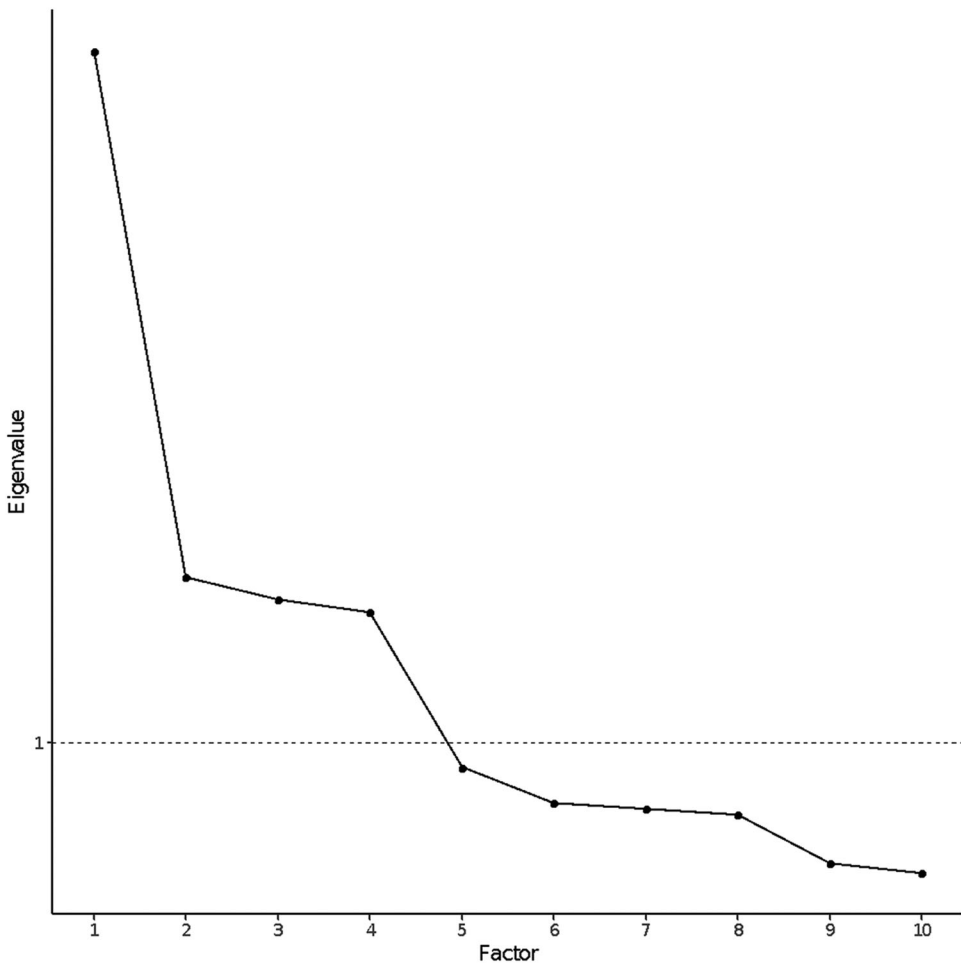
FIGURE 1 Scree plot of the 22 UTAUT-T items in the exploratory factor analysis

load on any factor ("It scares me that I cannot provide as much confidentiality in online as in in-person therapies," "A specific person/group is available to help me if I have difficulties with online therapy," and "I hesitate to use online therapy due to concerns about patient safety"), therefore these three items should be removed from the UTAUT-T measure. For the list of items, and their factor loadings for each factor, see Table 2. According to the EFA of 22 items, a five-factor structure of 19 items could be established.

The correlations among the five subscales (see Table 3) were highly significant, which suggests that a Total score on the UTAUT-T might be indicative of a common underlying level of acceptance of telepsychotherapy via videoconferencing technology.

3.3 | Reliability

The UTAUT-T total scale (19 items, without the two Behavioral Intention items) had high internal consistency (Cronbach's $\alpha = 0.95$). The internal reliability coefficients of the five factors identified through EFA were 0.73, 0.72, 0.81, 0.67, and 0.73, respectively (and 094 for the Behavior Intention scale), and an alpha of 0.86 for the total score

of the 19 items that loaded on the five factors. See Appendix A for a copy of the final 21-item UTAUT-T measure based on the EFA.

3.4 | Predicting behavior intention

The five UTAUT-T subscales together predicted the mean Behavioral Intention score ($R^2 = 0.42$, $F(5, 1259) = 181.9$, $p < 0.001$). Four of the subscales, Therapy Quality Expectancy ($B = 0.10$, $t = 18.63$, $p < 0.001$), Pressure from Others ($B = 0.10$, $t = 7.45$, $p < 0.001$), Convenience ($B = 0.05$, $t = 2.35$, $p = 0.019$), and Professional Support ($B = 0.05$, $t = 2.72$, $p = 0.006$), were also individually significant predictors of Behavior Intention, whereas Ease of Use did not significantly predict Behavioral Intention ($t = 0.86$, $p = 0.392$).

We also tested whether age, gender, previous experience with conducting telepsychotherapy via video-conferencing, and quality of working alliance in telepsychotherapy sessions may moderate the relationship between the UTAUT-T total score and Behavioral Intention. We found that age ($r = 0.03$, $p = 0.253$) and gender ($t = -1.79$, $p = 0.074$) were unrelated to Behavioral Intention, whereas both previous experience ($r = 0.30$, $p < 0.001$) and perceived working alliance ($r = 0.13$, $p < 0.001$) correlated positively with Behavioral Intention. Subsequently, we conducted two separate hierarchical multiple regressions for previous experience with telepsychotherapy and working alliance as potential moderators. In the first regression, we entered the UTAUT-T total score, previous experience with conducting telepsychotherapy (as a dummy variable: yes/no), and their interaction term (UTAUT-T × previous experience) as potential predictors of Behavioral Intention. We found that previous experience accounted for an additional 2% of unique variance over and above UTAUT-T total score to predict Behavioral Intention ($t = 5.83$, $p < 0.001$). Moreover, the interaction term added a small (0.2%) but significant unique variance to predict Behavioral Intention over and above UTAUT-T and previous experience ($t = 2.13$, $p = 0.034$). In the second model, we entered UTAUT-T total score, working alliance, and their interaction term (UTAUT-T × working alliance) into the regression model as potential predictors of Behavioral Intention, and found that neither working alliance ($t = -0.29$, $p = 0.771$), nor the interaction between UTAUT-T and working alliance ($t = 0.23$, $p = 0.982$) predicted unique variance over and above the variance explained by the UTAUT-T, whereas the UTAUT-T total score remained significant in predicting Behavioral Intention ($t = 4.80$, $p < 0.001$).

4 | DISCUSSION

The need for a measure of therapists' acceptance of using telepsychotherapy technology has become especially salient since the COVID-19 pandemic. The aim of the present study was to develop a self-report measure of therapists' acceptance of using telepsychotherapy technology to conduct therapy sessions and to evaluate its factor structure. We adapted and extended the widely accepted framework of the UTAUT model of technology acceptance to suit the psychotherapy profession. CFA indicated that the original and extended UTAUT model did not fit the therapist data collected in this study well. Subsequently, results of the EFA showed that a 19-item five-factor UTAUT-T version had good psychometric properties, including sufficient reliability and internal validity. The five factors of the UTAUT-T resembled the perceptions about the Therapy Quality Expectancy, Pressure from Others, Professional Support, Ease of Use, and Convenience. All factors (except for Ease of Use) predicted therapists' Behavioral Intention of using telepsychotherapy technology in the future.

Notably, this application of the UTAUT model to the telepsychotherapy context resulted in three factors that resembled those found in previous studies using the original UTAUT model; Therapy Quality Expectation, referring to the views on the quality of telepsychotherapy, is very similar to the original UTAUT factor Performance Expectancy. Ease of Use is very similar to the original UTAUT factor of Effort Expectancy, referring to the ease of using telepsychotherapy. Pressure from Others resembles the UTAUT factor Social Influence, which reflects

important people's opinion and general view of telepsychotherapy. The additional two factors identified in our therapist sample were Convenience and Professional Support, and appeared unique to the therapist profession, as these differed from the original UTAUT model. The identified Convenience factor in the UTAUT-T might not be surprising, given the unique circumstance of working remotely, often from home, without having to necessarily commute and maintain a separate therapy office. The convenience of providing telepsychotherapy sessions therefore may be an independent and salient aspect for therapists. Moreover, the factor of Professional Support also appeared to be unique to the therapist population and might reflect the importance of continued professional development and supervision throughout the therapists' professional career.

Grouping items together to get a sense of each factor is more valid and informative than investigating each item individually, which means that subscales allow for more reliable generalizations than individual items, reflecting underlying constructs that can be considered in formulations of therapists' attitudes. The developed five-factor UTAUT-T appears to successfully balance the need for parsimony (i.e., a model with the fewest number of factors[3]) against the need for plausibility (i.e., a model with a sufficient number of factors to adequately account for the correlations among measured variables[4]). To achieve this balance, we aimed to reduce the burden of completing the UTAUT-T measure by eliminating items that were not indicative of the four factors, while maintaining the validity and clinical utility of the five-factor structure (three of the 24 items were removed from the scale, resulting in a 21-item UTAUT-T).

Similar to UTAUT studies in other fields, the UTAUT-T subscales (with the exception of the Ease of Use subscale) both individually and together predicted therapists' Behavioral Intention to use telepsychotherapy in the future, which, in turn, has been robustly found to predict subsequent actual utilization of technology (see Venkatesh et al., 2012). The factor structure of the developed UTAUT-T, as described above, as a measure of acceptance of telepsychotherapy and its role in predicting therapists' intention of using telepsychotherapy, and actual future use of telepsychotherapy, can be illustrated in a theoretical model (see Figure 2).

Studies based on the UTAUT model suggested various moderators based on the context; research on the original UTAUT model suggested that age, gender, and voluntariness may act as moderators between acceptance of technology and actual future use (Venkatesh et al., 2012). We found that among our therapist sample, age, gender, and working alliance did not significantly predict intention to use telepsychotherapy in the future. However, previous experience with telepsychotherapy did predict future intention to use telepsychotherapy, and previous experience also served as a moderator between acceptance of telepsychotherapy and Behavioral Intention to
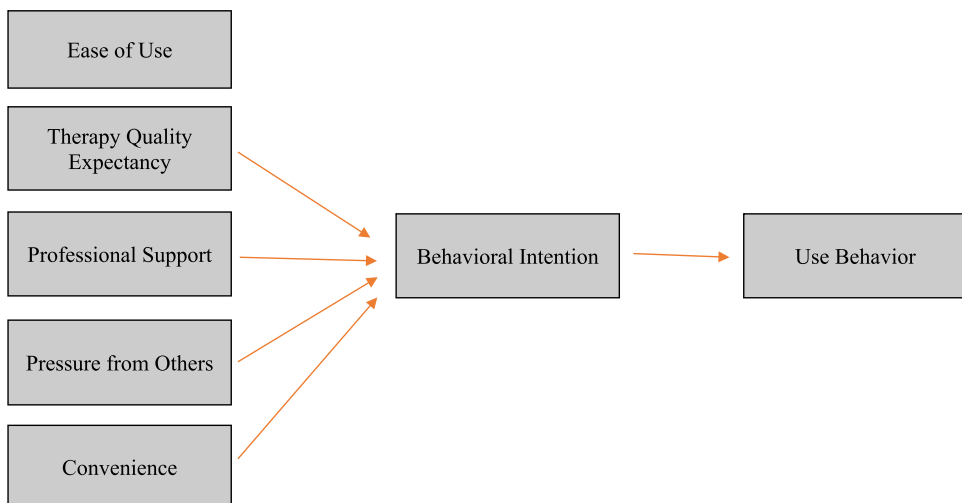
FIGURE 2 Predictors of intention and actual use of telepsychotherapy in the future

continue using it in the future. This implies that among therapists, the UTAUT-T measure is able to significantly predict the intention of future utilization of telepsychotherapy regardless of therapist age, gender, and perceived quality of the working relationship in telepsychotherapy sessions. Moreover, those therapists, who have already conducted telepsychotherapy in the past, are more likely to continue using it in the future, and even more so, if they were also more accepting of the telepsychotherapy format during the pandemic.

5 | LIMITATIONS

This psychometric report of the developed UTAUT-T is limited by several factors. First, the therapist sample was a relatively skewed sample of participants, in that most were North American and White. Consequently, caution is warranted in generalizing these results. Future studies on therapist samples might therefore apply stratified recruitment procedures, whereby other countries and minority ethnicities are represented according to the percentages in the population of therapists as a whole. Also, recruitment in future studies could, for example, specifically target more diverse therapist and patient populations, for example, in community clinics, hospitals, and prison settings.

Another related limitation is the use of online recruitment of therapist participants. The use of an Internet survey is an efficient, flexible, and cost-effective method (Batterham, 2014), which enabled the recruitment of a relatively large therapist sample, however, the external validity of Internet samples has been debated (Andersson & Titov, 2014). Arguably, during the pandemic, many people increased their online activity for personal and professional purposes, possibly increasing the representativeness of therapists who responded to our online survey. It is, however, possible that if we would have used paper and pencil surveys, our therapist sample might have reflected therapists who are less familiar with computers, and therefore would have reported more negative attitudes towards telepsychotherapy technology.

Moreover, in this online survey, we did not ask the therapists about their attitudes and proficiency in using technologies more generally. It is possible that their experience with other professional activities that take place online (webinars/listservs) as well as personal contacts via videoconferencing, both before and during the pandemic, might have impacted their attitudes towards providing telepsychotherapy more specifically. Therapists' comfort interacting with patients via videoconferencing may continue to increase as videoconferencing becomes ubiquitous across multiple domains, from coordinating remote work meetings to connecting with family members using smartphone video chat features.

Furthermore, since the primary aim of this study was the validation of the UTAUT-T rather than building a predictive model for therapists' intention to use technology, we did not investigate further potential moderators in our model, for example, voluntariness. Arguably, the COVID-19 context functioned as a type of voluntariness control, as therapists across the globe had to transition from in-person to remote psychotherapy, regardless of their pre-existing preferences. The "proof in the pudding" of the predicted behavioral intention of the therapists, will be the actual use of telepsychotherapy technology in future clinical practice, outside the pandemic context. Finally, the UTAUT-T was developed as a self-report measure. It could be argued that many attitudes and behavioral intentions towards technology are at least, in part, unconscious (Gawronski et al., 2006) and therefore self-report ratings might only reflect those views that therapists are consciously aware of or readily able to acknowledge rather than whether those attitudes are present per se.

There is a possibility that our findings are context-specific to the current COVID-19 pandemic, thus it will be important to replicate this study under normal, that is, outside the unique pandemic circumstances when therapists felt forced to transition to telepsychotherapy during COVID-19. Thus, additional moderators could potentially be identified in subsequent studies. For example, voluntariness of adopting innovation has been found to be a moderator in the UTAUT model (Connolly et al., 2020; Venkatesh et al., 2003), which means that the results of this study will need to be replicated in situations in which telepsychotherapy is a deliberate choice. Similarly, it will be

relevant to assess the predictive validity of the measured therapist attitudes with regard to their reported behavioral intention by examining their actual use of telepsychotherapy via videoconferencing in the future, not only during the pandemic, but also when the remote provision of therapy is no longer a health requirement.

6 | IMPLICATIONS FOR RESEARCH AND CLINICAL PRACTICE

The UTAUT-T, as a newly developed self-report measure tailored to therapists, allows for the assessment of therapists' acceptance of telepsychotherapy, specifically, how therapists perceive the quality of the telepsychotherapy they provide, how easy and convenient it is to use online technology, how they experience pressure and support from other people to provide telepsychotherapy, and their declared intention to use telepsychotherapy in the future.

Several implications for future research and clinical practice can be highlighted. First, by identifying predictors of therapists' intention to use telepsychotherapy and possible actual use in the future, professional organizations and supervisors have an opportunity to support therapists in addressing their concerns and regarding telepsychotherapy. Second, there is preliminary evidence showing that therapists' acceptance of online therapy could be improved by targeted interventions. For example, Baumeister et al. (2020) reported that therapists' attitudes towards blended therapy (a combination of online and face-to-face sessions) improved after receiving a short video showing an example of blended therapy. This suggests that training programs based on the factors identified in our study could possibly improve therapists' attitudes and likelihood of using telepsychotherapy in the future. Another type of support might be provided in the way of supervision and peer-support groups among therapists, possibly even more important during the isolating experience of providing therapy from home during the pandemic. Also, therapists' performance expectancy might be targeted by providing information and/or training to reduce concerns about the efficacy, alliance, patient experiences, and security in telepsychotherapy.

Similarly, communicating more widely about the positive opinions of colleagues, leaders, and professional organizations (i.e., factor Pressure from Others) as well as access to trainings, listservs, peer consultation, and supervision (Professional Support) may increase the likelihood that a therapist will use telepsychotherapy in the future. Moreover, employers and policymakers could possibly create circumstances in which telepsychotherapy is more convenient for therapists (e.g., allowing to work from home certain days of the week, setting the same fees for remote sessions as in-person, allowing for financial reimbursement from insurances). Notably, therapists' expectations about the amount of effort and technology skills involved (i.e., the Ease of Use factor) did not predict their behavioral intention; thus although relevant as a stand-alone factor regarding using technology, ease of use might not necessarily be the focus of training promoting the use of telepsychotherapy.

Therapist attitudes might be even more relevant going forward, in a time where previously described practical concerns about using telepsychotherapy have been resolved as a side-effect of the pandemic; insurances are now reimbursing telepsychotherapy, licensing and credentialing requirements have become flexible across states (Brooks et al., 2013). Moreover, the widespread adoption of telepsychotherapy as a result of this forced transition during the pandemic is likely to lead to a growing evidence-based for its effectiveness, thereby emphasizing the importance of training in and provision of telepsychotherapy in the future.

More specifically, outside the pandemic circumstances, research, training, and clinical practice might focus on hybrid models of care, such that patients receive a combination of in-person and remote sessions based on changing needs over the course of therapy (Yellowlees & Nafiz, 2010). These hybrid care structures are likely to become more common as telepsychotherapy becomes an accepted format of mental health care provision. The continued use and effectiveness of telepsychotherapy is a critical field for future study.

7 | CONCLUSION

The extensively researched conceptual model of technology acceptance can be usefully applied to the context of therapists providing telepsychotherapy. This study contributes to the growing body of UTAUT literature by examining the validity of this framework in the use and acceptance of telepsychotherapy technology during COVID-19. The developed UTAUT-T might be a helpful self-report tool for psychotherapy researchers, to assess therapists' attitudes towards and concerns about telepsychotherapy during COVID-19, and to predict their intention of using telepsychotherapy in the future. This study provides initial psychometric data on this therapist adaptation of the UTAUT as applied during the COVID-19 pandemic and offers a building block for future research on therapists' acceptance of telepsychotherapy going forward. Future studies on the convergent and predictive validity of the UTAUT-T are warranted.

DATA AVAILABILITY STATEMENT

The data set described in this article is not readily available because the data set is not approved by the IRB for use by other researchers. Requests to access the data sets should be directed to vera.bekes@yu.edu

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ENDNOTES

[1] Goodness of fit clinical cutoffs that we applied: X^2/df < 4, CFI > = 0.90, TLI > = 0.90, RMSE (90% CI) ≤ 0.08, SMRS ≤ 0.08 (see Table 3, p. 143 in Shaw et al. [2015]) (RMSR recommended threshold of 0.08 (Hu & Bentler, 1999).

[2] The factors were found to be correlated with one another, therefore oblique rotation (Promax) rather than orthogonal rotation (e.g., Varimax, which requires factor to be uncorrelated) was applied.

[3] Some argue that specifying too few factors in a model (i.e., underfactoring) is a severe error and should be avoided (Fabrigar et al., 1999). Such distortions can result in rotated solutions in which two common factors are combined into a single common factor (thereby obscuring the true factor structure) and in solutions with complex patterns of factor loadings that are difficult to interpret.

[4] Others emphasize that overfactoring should also be avoided (see Comrey & Lee, 1992). Solutions with too many factors might prompt a researcher to postulate the existence of constructs with little theoretical value and thereby develop unnecessarily complex theories. Solutions with too many factors can make minor components appear to be major components (Wood et al., 1996).

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APPENDIX A

UTAUT (Unified Theory of Acceptance and Use of Technology) Therapist version

How much do you agree with these statements about online therapy via video conferencing? Please rate each statement on the following scale from 1 to 5:

1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree

1	I find online therapy works well for patients.
2	The quality of online therapy is the same as in-person therapy.
3	Using online therapy saves me time and/or money.
4	People who influence me think that I should use online therapy.
5	I am concerned that it is hard to feel connected with my online patients (R).
6	I find providing online therapy easy.
7	I intend to use online therapy after the end of the pandemic.
8	My professional organization supports online therapy.
9	I am concerned whether we can communicate emotions online (R).
10	I plan to use online therapy after the end of the pandemic.
11	I feel apprehensive about using online therapy (R).
12	Using the online therapy technology is clear and understandable.
13	Working online is more convenient.
14	It is easy to learn how to provide online therapy.
15	I enjoy doing online therapy.
16	People who are important to me think that I should do online therapy.
17	Using online therapy is a good idea.
18	I have the professional and technical knowledge necessary to do online therapy.
19	Colleagues and leaders in the field are supporting online therapy.
20	Online therapy is somewhat intimidating for me (R).
21	Online therapy is not compatible with the way I generally provide therapy (R).

Subscales:

Therapy Quality Expectation: 1, 2, 5R, 6, 9R, 11R 15, 17, 21R; Ease of use: 12, 14, 18, 20R; Pressure from others: 4, 16; Professional Support: 8, 19; Convenience: 3, 13; Behavior intention: 7, 10.