Therapeutic alliance and clinical outcomes in teletherapy and in-person psychotherapy: A noninferiority study during the COVID-19 pandemic

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RESEARCH ARTICLE

Therapeutic alliance and clinical outcomes in teletherapy and in-person psychotherapy: A noninferiority study during the COVID-19 pandemic

KATHERINE A. DAVIS[1], FANGHUI ZHAO[2], REBECCA A. JANIS[3], LOUIS G. CASTONGUAY[1], JEFFREY A. HAYES[2], & BRETT E. SCOFIELD[3]

[1]*Department of Psychology, The Pennsylvania State University, University Park, PA, USA;* [2]*Department of Educational Psychology, Counseling, and Special Education, The Pennsylvania State University, University Park, PA, USA &* [3]*Counseling and Psychological Services, The Pennsylvania State University, University Park, PA, USA*

Abstract

Objective The current study aimed to inform the varied and limited research on clinical variables in the context of teletherapy. Questions remain about the comparative quality of therapeutic alliance and clinical outcome in the context of teletherapy compared to in-person treatment.

Methods We utilized a cohort design and a noninferiority statistical approach to study a large, matched sample of clients who reported therapeutic alliance as well as psychological distress before every session as part of routine clinical practice at a university counseling center. A cohort of 479 clients undergoing teletherapy after the emergence of the COVID-19 pandemic was compared to a cohort of 479 clients receiving in-person treatment before the onset of the pandemic. Tests of noninferiority were conducted to investigate the absence of meaningful differences between the two modalities of service delivery. Client characteristics were also examined as moderators of the association between modality and alliance or outcome.

Results Clients receiving teletherapy showed noninferior alliance and clinical outcome when compared to clients receiving in-person psychotherapy. A significant main effect on alliance was found with regard to race and ethnicity. A significant main effect on outcome was found with regard to international student status. Significant interactions on alliance were found between cohort and current financial stress.

Conclusions Study findings support the continued use of teletherapy by demonstrating commensurate clinical process and outcome. Yet, it will be important for providers to be aware of existing mental health disparities that continue to accompany psychotherapy – in person and via teletherapy. Results and findings are discussed in terms of research and clinical implications. Future directions for researching teletherapy as a viable treatment delivery method are also discussed.

Keywords: college student mental health; teletherapy; therapeutic alliance; psychotherapy outcome; client characteristics

Clinical or methodological significance of this article: Continued use of teletherapy has the potential to improve access to mental health treatment without loss of quality in alliance and outcome. Clients may benefit from providers' attention to demographic and client characteristics that may influence existing mental health disparities.

In the context of the global outbreak of coronavirus disease 2019 (COVID-19), the effectiveness of teletherapy (remote treatment delivery including telephone, chat, emails, and videoconferencing) has received increased attention. Consistent with other widespread disasters, both the outbreak and its social and economic disruptions have had large scale secondary mental health impacts, in addition to introducing barriers to mental healthcare (Goldmann & Galea, 2014). The current study focuses on one modality of teletherapy: videoconferencing. This method allows clinician and client to interface

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*Correspondence concerning this article should be addressed to Katherine A. Davis, Department of Psychology, The Pennsylvania State University, 346 Moore Building, University Park, PA 16801, USA. Email: kad6082@psu.edu

directly through video link while overcoming barriers involving distance and contagion risk.

As part of the widespread transition to remote service provision as the pandemic emerged, video-conferencing teletherapy (hereinafter referred to as simply "teletherapy") delivery systems have been adopted by many, such as university counseling centers. Teletherapy has also presented advantages above and beyond the emergency response of the COVID-19 pandemic, including improved access to care for underserved populations who could not otherwise receive mental healthcare due to a variety of limitations (e.g., need to commute long distances, stigma, ability differences). Therefore, the continued use of teletherapy beyond a temporary emergency measure is likely in a variety of clinical settings, including university and college counseling centers, in order to provide an alternative, flexible mode of care that reduces barriers for some clients.

Despite teletherapy's potential advantages of practicality and convenience, there are lingering questions regarding the comparative quality of teletherapy in relation to in-person services. Psychotherapist and client attitudes towards teletherapy may well be important factors in its utilization. Findings on clients' attitudes toward teletherapy compared to face-to-face services are variable. Prior research in diverse settings in the US (community colleges and public four-year universities) has shown that students in the general college population (both treatment-seeking and non-treatment seeking) utilize in-person therapy more than teletherapy, citing factors like comfort, convenience, and the facilitation of open and honest discussion in face to face treatment (Dunbar et al., 2018; Toscos et al., 2018; Travers & Benton, 2014), although "online services" and "telemental health resources" were defined more broadly than videoconferencing in studies published before the onset of the pandemic. In contrast to the general student body, however, exclusively treatment-seeking college students at one university (in the intermountain region of the US) endorsed convenience, frequency of interactions, and ease of access to previous sessions' recorded materials as advantages of teletherapy; they also reported fewer reservations than therapists about teletherapy regarding the confidentiality of therapy, the potential impact on the therapeutic relationship, and technology concerns (Petersen, 2020). In terms of providers, both prior to and during the pandemic, several studies (involving therapists and mental health staff in a range of US and Canadian clinical contexts) discovered at least a portion of providers to be hesitant to utilize teletherapy due to negative attitudes (Doran & Lawson, 2021; Perle et al., 2014; Perry et al.,

2020), as well as anticipated logistical and technological issues (Interian et al., 2018).

Despite these reservations, the literature appears to show that therapists and mental health staff (from various parts of the US) have overall positive attitudes towards teletherapy (Glueckauf et al., 2018; Lindsay et al., 2017; Moreau et al., 2018; Perry et al., 2020). In fact, a recent meta-analysis found that therapists have generally favorable impressions towards teletherapy, despite acknowledging drawbacks such as crisis risk and cumbersome technology (Connolly et al., 2020). Perhaps not surprisingly, empirical findings (obtained from samples of veterans' mental health services in the US as well as mental health providers in Canada) show a positive association between therapists' attitudes towards teletherapy and their utilization of the modality (Adler et al., 2014; Brooks et al., 2013; Gilmore & Ward-Ciesielski, 2019; Simms et al., 2011). In line with such findings, a retrospective assessment showed that there was a significant shift in perceptions of teletherapy among mental health professionals since COVID-19 (Doran & Lawson, 2021). Song and Foster (2022) found over a third of patients and half of the therapists reported a positive attitude change towards teletherapy after the providers transitioned to teletherapy due to COVID-19 restrictions.

Therapist concerns about adopting teletherapy seem to exist, however, with regard to its effectiveness in producing change and creating a strong therapeutic alliance. The importance of creating a strong therapeutic alliance is underscored by a recent meta-analysis of 306 studies supporting the positive relationship between alliance and treatment outcome (Flückiger et al., 2019). Previous research has revealed that psychologists rate the quality of the therapeutic relationship lower in teletherapy formats than in a traditional in-person format, both in the context of an RCT in the US (Ertelt et al., 2011) and in a variety of mental health providers throughout the US (Gordon et al., 2015). This was true in a study where graduate student therapists (at a large southeastern US counseling psychology program) were asked to rate the alliance while observing a scripted session in either face-to-face format or videoconferencing format, indicating the possibility that negative attitudes may potentially bias ratings (Rees & Stone, 2005). Providers across several studies cited concerns that nonverbal cues might be missed during teletherapy sessions, potentially interfering with the formation of the therapeutic alliance (Connolly et al., 2020). Indeed, providers have been shown to have a contrasting experience with clients, who are generally satisfied with the establishment of the therapeutic alliance in teletherapy, as revealed by a literature review conducted before the pandemic emerged (Cataldo, 2021).

However, the results of two separate meta-analyses, of 65 studies (Backhaus et al., 2012) and 23 studies (Simpson & Reid, 2014) respectively, indicate that the strength of the therapeutic relationship in teletherapy conditions was not significantly different from that of traditional in-person services. Relatedly, one recent meta-analysis of 5 studies compared client-rated and therapist-rated therapeutic alliance and found no difference between teletherapy and face-to-face treatments for anxiety disorders (Krzyzaniak et al., 2021). In addition, as part of an RCT conducted in Canada, Watts et al. (2020) found stronger therapeutic alliance in a condition where psychotherapy was delivered via teletherapy when compared to that of a conventional psychotherapy condition. Similar findings were also found in studies conducted since the COVID-19 pandemic. In a self-report survey of therapists using teletherapy across the United States, Canada, China, and Europe during the pandemic, Békés et al. (2021) found that perceptions of alliance across their patients in general were positively associated with attitudes towards teletherapy and intention to use this mode of treatment in the future. Moreover, a qualitative study (Glass & Bickler, 2021) explored working alliance in teletherapy settings across the US and found that therapist-reported therapeutic alliance was as strong as in-person services, as therapists could use visual and auditory cues as well as their perceptions of the clients' environments to deepen therapeutic alliance. As part of a retrospective study previously mentioned, Doran and Lawson (2021) found most mental health providers surveyed reported the alliance was "very similar" between face-to-face vs. teletherapy modalities. A recent study (Rowen et al., 2022) on novice therapists delivering teletherapy in a training clinic at a large urban US university found that clients reported quality therapeutic alliance at the outset of treatment, which improved over time.

In contrast with the aforementioned meta-analyses, Norwood et al. (2018), in a meta-analytic review, discovered that the therapeutic alliance in teletherapy was inferior to face-to-face delivery, in analyses conducted prior to the onset of the pandemic. This discrepancy might be due to the different inclusion and exclusion criteria used by the four meta-analyses discussed above, as Norwood et al.'s meta-analysis adopted more restrictive criteria with regard to clinical outcome (including only studies that measured both pretreatment and posttreatment measures of symptom severity), intervention (including only studies with individual CBT therapy), and population (including only data on adult patients). Importantly, Norwood et al. utilized noninferiority analyses, a more stringent and valid methodology

for demonstrating statistical equivalence or noninferiority as opposed to null-hypothesis significance testing.

In addition to these inconsistencies, important gaps remain in the empirical literature. First, while evidence from systematic reviews suggests that treatment outcomes in teletherapy are comparable to face-to-face services for several clinical problems (Barnett et al., 2021; Batastini et al., 2021; Greenwood et al., 2022), only one source of evidence was based on noninferiority analyses (Norwood et al., 2018). Noninferiority testing, as opposed to null-hypothesis significance testing, indicates the absence of a meaningful difference. This approach can indicate more robust support of novel modalities because it provides evidence that a new treatment, in this case teletherapy, is not meaningfully less effective than the existing standard. Furthermore, as questions remain regarding for whom teletherapy works best, moderators of the association between service modality and clinical variables (e.g., alliance and outcome) also have yet to be investigated (Backhaus et al., 2012).

It should also be emphasized that the pandemic is regarded by many as a widespread and shared trauma, which forced large numbers of individuals to adopt and accept teletherapy as their only option for routine mental healthcare. Therefore, it is not clear whether the therapeutic alliance formed during a teletherapy modality could be affected by such a context. Moreover, much of the past research concerning alliance quality via teletherapy is largely outdated and no longer represents the technological world in which we live today – the median publication years in past meta-analyses were 2010 (Norwood et al., 2018), 2004 (Backhaus et al., 2012), 2006 (Simpson & Reid, 2014), and 2014 (Krzyzaniak et al., 2021) respectively, with only nine studies from the meta-analyses collectively published in the past decade.

Current Study

To address the aforementioned inconsistencies, gaps, and outdated findings, the current study used a noninferiority design to compare clinical outcome and average therapeutic alliance of two cohorts of clients: one who received in-person sessions of psychotherapy and another who received teletherapy sessions, both within a single college counseling center. These distinctive cohorts reflect a shift in treatment modalities from in-person sessions to teletherapy that was due to the transition to remote services in response to the onset of the COVID-19 pandemic. The cohort study design was selected

primarily to address a gap in the literature on teletherapy, which employs an experimental design almost exclusively. Using naturalistic cohorts with clients who elected to receive the only available modality was aimed at examining differences between in-person psychotherapy delivery and teletherapy with increased external validity. The following hypotheses and questions were tested:

1. Given the mixed findings in the empirical literature, we hypothesized that those who received teletherapy would show noninferior average alliance scores across treatment compared to clients who received in-person psychotherapy

2. Given that prior research comparing treatment outcomes between the two treatment modalities found no differences, we hypothesized that clients who received teletherapy would show noninferior residualized posttreatment distress scores compared to clients who received in-person psychotherapy

3. To inform clinical decisions of offering teletherapy vs. in-person treatments to clients with various marginalized identities, the current study also examined, via exploratory analyses, whether the associations between cohort and clinical outcomes (average therapeutic alliance or residualized posttreatment distress) were moderated by client demographic characteristics. Previous systematic review has concluded that the influence of factors related to gender, racial and ethnic identity, sexual orientation, or other predictors on therapeutic alliance has yet to be thoroughly understood (Backhaus et al., 2012). Moderating effects of these demographic variables were investigated for the two cohorts of clients who received either all in-person psychotherapy or all teletherapy in the present study.

Methods

Procedure

This study used retrospective data from two naturalistic cohorts of clients accessing care at a college counseling center at a large, four-year, public university in the northeastern US. Data were collected from clients as part of the center's routine clinical practice, using standardized measures. The data were then de-identified for analyses. Cohort 1 received in-person treatment during the Fall academic semester of 2019, before the center offered teletherapy. Cohort 2 received treatment in the Fall academic semester of 2020, after the center completely transitioned to teletherapy. All clients in Cohort 1 received their full courses of treatment in person, terminating before the center transitioned to remote care. All clients in Cohort 2 received their full courses of treatment via teletherapy.

Cohorts formed naturally according to the clinical routine of the counseling center before and after the pandemic emerged, respectively. It is important to recognize that the lack of random assignment may have introduced selection bias into the total sample potentially leading to differences between the two cohorts on client-level variables. As an attempt to address this possibility, clients were matched on three variables: gender, race/ethnicity, and financial stress status, as captured by the Standardized Data Set (SDS; see section below). These variables were selected for matching for two reasons: first, because they are commonly understood to be linked with mental health disparities, and second, they may potentially influence any given client's decision to seek remote services. Matching was achieved via calculating propensity scores using the "nearest neighbor" method and resulted in a final sample of 479 clients in the in-person cohort and 479 matched clients in the teletherapy cohort (a reduction of 161 clients from the original sample).

In both cohorts, clients completed routine intake measures before their first session and routine alliance and outcome measures before all subsequent sessions (see Measures section below). All clients had a minimum of two individual psychotherapy sessions, as alliance was captured beginning at their second appointment. Clients received an average of 5.3 sessions of in-person psychotherapy or an average of 4.8 sessions of teletherapy. However, the number of total sessions clients received varied greatly from 2 to 16. Specifically, in each cohort, approximately 59% of clients received 5 or fewer sessions, approximately 38% of clients received between 6 and 10 sessions, and less than 5% of clients received over 10 sessions.

Clients whose first or last session occurred outside the temporal windows of either of the Fall semesters were excluded from the final dataset. Some clients returned to the counseling center for another course of treatment, indicated by an interval of at least 90 days between sessions; only clients' first course of treatment was included in the analyses. The final dataset consisted of 479 clients in each cohort.

Participants

The majority of clients identified as white (66.0% in Cohort 1; 67.4% in Cohort 2), heterosexual or straight (82.2% in Cohort 1; 76.2% in Cohort 2), women (62.8% in Cohort 1; 66.0% in Cohort 2). Demographic/client variables included in the moderator analyses are presented further in Table I. Clients attended the university as either part-time or full-time students.

As part of the clinical routine of the center, individual clients' presenting concerns are documented by the therapist at the first session and the "top concern" is identified as the primary target of treatment. In the matched sample, the most common "top" presenting concerns were: (1) Depression, (2) Generalized Anxiety, (3) Eating/Body Image, (4) Stress, (5) Social Anxiety.

Clients in this study were treated by 62 therapists, 36 of whom provided demographic data. These therapists were an average age of 38.8 years old (*SD* = 10.2). Most therapists identified as women (73.7%), with 21.2% identifying as men, 2.6% identifying as transgender, and 2.6% as non-binary. Most (79.0%) of the therapists were white, 10.5% were

Asian American/Asian, 5.3% were Black, 2.6% were Hispanic/Latino/a, and 2.6% were multi-racial. Over a third of the therapists (39.5%) were doctoral-level psychologists, with the remaining therapists a mix of master's-level clinicians and bachelor's-level professionals. Less than 3% of the therapists were nurses or psychiatrists.

Measures

Standardized Data Set (SDS). This self-report instrument (Center for Collegiate Mental Health, 2017) is administered at intake and was utilized to capture clients' demographic variables, including

Table I. Sample demographics .

Variable	Percentage	
	Cohort 1 (In-person; *n* = 479)	Cohort 2 (Teletherapy; *n* = 479)
Gender		
Man	36.12%	31.52%
Transgender/Non-binary/Self-identify	1.04%	2.51%
Woman	62.84%	65.97%
Race/ethnicity		
African American/Black	8.14%	7.10%
American Indian or Alaskan Native	<1%	<1%
Asian American/Asian	12.53%	14.82%
Hispanic/Latino/a	7.10%	6.47%
Native Hawaiian or Pacific Islander	<1%	<1%%
Multi-racial	6.26%	4.18%
White	65.97%	67.43%
Sexual orientation		
Asexual	[a]	2.09%
Bisexual	9.22%	11.72%
Gay	2.52%	2.72%
Heterosexual/Straight	82.18%	76.16%
Lesbian	1.47%	0.84%
Pansexual	[a]	1.26%
Questioning	2.10%	2.93%
Queer	[a]	1.46%
Self-identify/Other	2.52%	0.84%
Current academic status		
Freshman/First year	17.75%	22.57%
Sophomore	19.42%	15.61%
Junior	25.05%	24.47%
Senior	25.68%	19.62%
Graduate/Professional degree student	11.90%	16.88%
Other	0.21%	0.84%
Financial stress		
Never stressful	11.90%	14.45%
Rarely or sometimes stressful	70.56%	66.39%
Often or always stressful	17.54%	18.16%
International student status		
Domestic	89.77%	89.52%
International	10.23%	10.48%
Disability status		
Disability	7.78%	6.68%
No disability	92.22%	93.32%

[a]Self-report options for sexual orientation were updated after Fall 2019 and before Fall 2020 to include the identities "asexual", "pansexual", and "queer".

gender, racial and ethnic identity, sexual orientation, international student status, disability status, current academic status, and socioeconomic background. See Table I for a full list of response options for each demographic/client variable.

Session Alliance Inventory. Clients' perceptions of the alliance were measured using the Session Alliance Inventory (SAI; Falkenström et al., 2015), which is a 6-item self-report measure based on the Working Alliance Inventory – Short form Revised (WAI-SR; Hatcher & Gillaspy, 2006). This short version of the Working Alliance Inventory (WAI; Horvath & Greenberg, 1989) was built to be easily administered and completed at each session. Each item is scored on a 6-point Likert-scale ranging from 0 (*not at all*) to 5 (*completely*). Higher scores reflect more positive client ratings of the alliance with their therapist. An overall item score was generated by averaging the six item scores on the SAI, based on results of Falkenström et al. showing that a general alliance factor accounts for most of the shared variance among the six items. Longitudinal measurement invariance analyses showed excellent internal consistency reliability (between 0.89 and 0.94 for the composite sum or mean of the six items in the three original samples used in Falkenström et al). The SAI was slightly modified in the present study so that clients reflected on their prior session immediately before attending their current session. Clients were still included in the case of missing data on the items of their SAI, provided there were fewer than three items missing. SAI data was systematically missing for every client's final session due to administration policies (clients completing the instrument prior to session in reference to the previous one). However, all clients in the sample had at least one complete SAI administration. Sessions with the entire SAI administration missing were excluded from client average SAI and not imputed in any way. In this sample, internal consistency of alliance was evaluated using all repeated measures of the instrument for each appointment, resulting in a reliability coefficient (Cronbach's alpha) of 0.9.

Counseling Center Assessment of Psychological Symptoms (CCAPS). This instrument is a multidimensional assessment of psychological symptoms for specific use in college populations consisting of eight subscales (i.e., Depression, Generalized Anxiety, Social Anxiety, Academic Distress, Family Distress, Eating Concerns, Hostility, Alcohol Use) and one general Distress Index (Locke et al., 2011). The instrument has been shown to have sound psychometric properties. The instrument has shown good 1-week and 2-week test-retest reliability ($r = 0.759–0.927$) and convergent validity to referent measures (Locke et al., 2011). Higher self-report scores indicate more distress as per items rated on a 5-point scale ranging from 0 (*not at all like me*) to 4 (*extremely like me*). As part of the center's routine clinical practice, clients complete the full-length 62-item measure at intake and the abbreviated 34-item measure prior to each subsequent session. A residualized posttreatment score on the Distress Index was calculated for each client by removing variance in posttreatment score attributable to their pretreatment (baseline) score. This was used as the measure of clinical outcome in analyses. In this sample, internal consistency of the Distress Index was evaluated using the first administration of the instrument for each client, leading to a reliability coefficient for initial distress (Cronbach's alpha) of 0.9.

Statistical Analyses

All data processing and analyses were performed using the statistical software R, version 4.1.3 (Posit Team, 2022). As described above, clients were matched on three demographic variables (gender, race/ethnicity, and financial stress status) using the "nearest neighbor" method in the *MatchIt* package (Ho et al., 2011). To operationalize alliance, the session-by-session ratings for all clients in both cohorts were averaged within treatment course, resulting in one average alliance score per client. To operationalize clinical outcome, posttreatment Distress Index scores (from clients' final sessions) were residualized on pretreatment scores.

Noninferiority analyses were conducted to test if the average alliance and residualized posttreatment distress ratings in Cohort 2 (teletherapy condition) were noninferior to Cohort 1 (in-person condition). As opposed to null-hypothesis significance testing, which measures the presence of a significant difference, noninferiority testing achieves the opposite – testing for the absence of a significant difference. In this way, true equivalence or noninferiority can be concluded as opposed to an erroneous conclusion of equivalence in the case when results of null-hypothesis significance testing are non-significant (Lakens et al., 2019).

Conducting noninferiority analyses (one-tailed) requires selecting a lower margin for the difference between conditions. Here, the null-hypothesis is that the difference between the two conditions is greater than the threshold, while the alternative hypothesis is that the difference is less than the threshold. A significant noninferiority test allows for the conclusion that the teletherapy condition is

noninferior to in-person treatment. There are no commonly accepted standard margins for the variables in question, but nearly all prior research on the current constructs has utilized Cohen's $d = 0.5$ (Morland, 2010; Norwood et al., 2018). Noninferiority analyses were performed using the package TOSTER (Lakens, 2017). This software package provides results for both equivalence and null-hypothesis significance testing, as they can sometimes yield paradoxical results.

Moderator analyses were conducted to explore whether client demographic characteristics moderated the relationships between (1) cohort (service modality) and average therapeutic alliance score or (2) cohort (service modality) and residualized post-treatment Distress Index score. Moderator analyses were exploratory in nature. The demographic categorical predictor variables of interest were dummy coded to assess differences pertaining to race and ethnicity (among white, Black/African American, American Indian or Alaskan Native, Asian American/Asian, Hispanic/Latino/a, Native Hawaiian or Pacific Islander, and Multi-racial clients, with white clients coded as the reference group), gender (between binary men/women and non-binary, transgender, or self-identifying clients, with cisgender men as the reference group), sexual orientation (between heterosexual or straight and Lesbian, Gay, Bisexual, Queer, and other [LGBQ +] clients, with heterosexual or straight clients as the reference group), international student status (between domestic and international clients), disability status (between clients who have a registered disability and clients who do not), and socioeconomic difficulty (between clients who report their financial distress as high, low, or none, with clients who report none as the reference group).

Results

Means and standard deviations of baseline, post-treatment, and change scores are reported by cohort in Table II, along with means and standard deviations for average therapeutic alliance scores. Variance at the therapist level was tested to determine whether therapists needed to be included as a level of nesting. Intraclass correlation analyses indicated that a small amount of variance existed between therapists for alliance (ICC = 0.023) and for residualized posttreatment distress index (ICC = 0.028). In other words, approximately 2.3% of the variability in working alliance and approximately 2.8% of the variability in outcome on residualized posttreatment distress index scores was attributable to differences between therapists.

Table II. Average alliance, baseline CCAPS subscale scores, baseline Distress Index scores, posttreatment Distress Index Scores, and residualized posttreatment Distress Index change scores by cohort.

Measure	Cohort 1 (In-person; $n = 479$)		Cohort 2 (teletherapy; $n = 479$)	
	M	SD	M	SD
Session Alliance Inventory	4.51	0.67	4.54	0.62
Baseline Distress Index	1.77	0.86	1.85	0.79
Baseline CCAPS subscales				
Depression	1.78	0.97	1.83	0.89
Generalized Anxiety	1.82	0.93	1.88	0.87
Social Anxiety	1.99	0.97	2.02	0.95
Academic Distress	1.81	1.01	2.01	2.02
Eating Concerns	1.03	0.89	1.14	0.84
Frustration/Anger	0.90	0.83	0.91	0.81
Family Distress	1.14	0.93	1.26	0.95
Posttreatment Distress Index	1.23	0.83	1.27	0.78
Residualized posttreatment Distress Index	−0.02	0.58	−0.03	0.58

The lower limit of the 90% CI for average therapeutic alliance ($t[354.5] = 6.1$; $p < 0.001$, CI [−0.1, 0.2]) fell within the lower margin of noninferiority ($\Delta = −0.5$), indicating that, with respect to therapeutic alliance, teletherapy was noninferior to in-person treatment. In other words, the effect was statistically equivalent to zero. The null-hypothesis significance test showed consistent results. The effect size for the difference was 0.1. These results support our hypothesis that average alliance score of Cohort 2 would be noninferior to Cohort 1 with a threshold of −0.5.

The lower limit of the 90% CI for residualized posttreatment score in clinical outcome ($t[978.7] = 7.0$; $p < 0.001$, CI [−0.1, 0.1]) fell within the lower margin of noninferiority ($\Delta = −0.5$), indicating that, with respect to distress, teletherapy was noninferior to in-person treatment. In other words, the effect was statistically equivalent to zero. The null-hypothesis significance test showed consistent results. The effect size for this noninferiority test was −0.1. We hypothesized that clinical outcome via residualized posttreatment distress scores of Cohort 2 would be noninferior to Cohort 1 with a threshold of −0.5. The results support this hypothesis.

With regard to demographic/client moderators, a number of significant findings were observed. In terms of race and ethnicity, among the groups tested, significant main effects were found for Asian American/Asian clients when compared to white clients. Results suggest a main effect of race and ethnicity on alliance ($b = −0.2$, $t(948) = 0.1$, $p = 0.03$, 95% CI [−0.4, −0.1]), specifically a significant difference of 0.2 points in average therapeutic

alliance score between white and Asian American/ Asian clients, such that Asian American/Asian clients showed a lower average alliance score throughout treatment when compared to white clients, regardless of cohort. There were no significant interactions found between racial and ethnic identity and cohort on alliance or on distress.

There were no main effects or significant interactions found between gender identity and cohort on alliance. There were no significant interactions found between gender identity and cohort on residualized posttreatment distress. There were also no significant main effects or significant interactions found for sexual orientation or disability status on either alliance or outcome.

Results showed a significant interaction between financial stress and cohort on alliance when comparing clients with low financial stress and clients with high financial stress to no financial stress. Simple effects analysis revealed a significant association for clients in the in-person cohort ($b = -0.2$, $t(952) = -2.0$, $p = 0.04$), such that clients experiencing low financial stress reported lower average alliance scores than clients who reported no financial stress. This difference is not seen for clients in Cohort 2, receiving teletherapy ($b = 0.1$, $t(952) = 0.8$, $p = 0.40$). Simple effects also revealed a significant and larger association between financial stress and alliance in the in-person cohort when comparing clients experiencing high financial stress with those experiencing no financial stress ($b = -0.3$, $t(952) = -2.5$, $p = 0.01$), such that clients experiencing high financial stress reported lower average alliance scores than clients reporting no financial stress. This difference was also not found in the teletherapy condition ($b = 0.1$, $t(952) = 0.9$, $p = 0.36$). Altogether, results show that the discrepancy in alliance scores observed in clients receiving in-person therapy for clients with financial distress compared to those without financial stress did not exist in the teletherapy condition. There were no significant interactions found between current financial stress and cohort on residualized posttreatment distress.

In terms of international student status, results showed a main effect on outcome ($b = -0.2$, $t(942) = 0.1$, $p < 0.05$, 95% CI [0.1, 0.4]), specifically a significant difference of 0.2 points in residualized posttreatment Distress Index score between domestic and international clients, such that international clients' symptoms improved less after treatment, regardless of cohort. There were no significant interactions found between international student status and cohort on alliance or on residualized posttreatment distress.

To explore the possibility that presenting distress could account for part of the variance in average alliance scores throughout treatment, a post-hoc test of the association between baseline Distress Index and average SAI was conducted. A significant negative association was found ($b = -0.1$, $t(955) = -4.3$, $p < 0.001$, 95% CI [−0.2, −0.1]), such that clients presenting with higher distress reported lower average alliance scores throughout treatment. Treatment modality (cohort) was included in the model as a potential moderator. Results showed that the association between baseline distress and alliance does not depend on treatment modality. In other words, the association is present across both cohorts.

The results discussed were found using the subset sample matched on gender, race/ethnicity, and financial stress status. As a sensitivity analysis, the analyses were also conducted with the full sample. Results were generally convergent between the two samples. Without matching on such client variables, the finding that clients were noninferior on average alliance between cohorts also showed a significant null-hypothesis significance test ($t(354.5) = 1.4$, $p = 0.2$, CI [−0.1, 0.2]), concurrent with the significant equivalence test. However, the equivalence test was significant both for average alliance and clinical outcome. Additionally, in the unmatched full sample, there was a main effect of gender on average alliance such that cisgender women showed higher average SAI scores throughout treatment as compared with cisgender men ($b = -0.1$, $t(1112) < 0.1$, $p < 0.05$, 95% CI [0.1, 0.2]), which was not observed with the matched sample. Lastly, a negative association was found between international student status and average alliance such that international student clients showed lower average alliance scores throughout treatment as compared with domestic clients ($b = -0.2$, $t(1100) = 0.1$, $p = 0.001$, 95% CI [−0.3, −0.1]) – the similar association found on clinical outcome in the matched sample did not appear to hold with the full, unmatched sample.

Discussion

This study aimed to investigate whether a cohort of clients at a college counseling center receiving teletherapy would show noninferior self-reported therapeutic alliance and noninferior clinical outcomes when compared to a cohort of clients receiving in-person psychotherapy at the same center. This study also aimed to examine if demographic/client variables significantly moderated the association between clients' cohort and (1) therapeutic alliance and/or (2) clinical outcome in order to explore for whom teletherapy might work best.

The difference between therapeutic alliance in the teletherapy cohort compared to the in-person cohort was found to be statistically noninferior, as per the one-tailed test of noninferiority. Clinical outcome, as operationalized by calculating residualized post-treatment distress, was found to be statistically non-inferior in the teletherapy cohort when compared to in-person psychotherapy, as per one-tailed test of noninferiority. It is perhaps not surprising that both cohorts of clients showed commensurate clinical outcomes given the foundation of previous work with consistent findings. However, results of the current study show that this finding holds even in the context of an emergency shift to teletherapy and the unprecedented proportion of clientele receiving remote services.

Significant main effects of client characteristics were found for both alliance and clinical outcome. These were racial/ethnic identity (in the case of Asian American/Asian clients reporting lower alliance compared to white clients regardless of cohort) and international student status (in the case of international student clients reporting less symptomatic improvement compared to domestic clients regardless of cohort). In addition, there were two interactions found between cohort (service modality) and current financial stress (in the case of clients with high stress or low stress reporting lower alliance in in-person therapy).

The finding that Asian American/Asian clients self-reported lower average therapeutic alliance scores across treatment may reflect past research showing disparities in mental health experiences for this racial group. Such research shows that Asian American and Asian college students experience not only higher mental health difficulties, but also lower utilization of clinical services (Chen et al., 2019; Hunt et al., 2015). However, the finding in the current study was a main effect, holding for both cohorts of clients. The current study did not find an interaction between cohorts such that clients receiving teletherapy showed inferiority in either alliance or clinical outcome.

These findings, when considered together, have clinical implications with respect to the future of teletherapy services. A positive finding is that transitioning to teletherapy, broadly, does not necessarily come with a cost in either therapeutic alliance or clinical outcome, as those factors were found to be noninferior in the remote condition. This finding suggests that clinicians delivering services in circumstances comparable to the ones in this study can continue utilizing modalities of remote service provision without sacrificing integral therapeutic ingredients and clinical improvement. However, alongside this fortunate "business as usual" finding is the unfortunate unchanging state of affairs that certain clients (members of specific racial and ethnic groups, those with international backgrounds) may be at the same risks when receiving virtual services as they are with in-person psychotherapy. Utilizing remote as opposed to in-person services does not eliminate the known disparities that exist with certain underserved clinical populations. It is therefore important for clinicians to remain vigilant towards disparities in mental healthcare processes that may have existed both before and after vast increases in teletherapy service utilization.

In addition, current financial stress was found to moderate the association between cohort and alliance, such that clients with financial stress who were receiving in-person therapy reported significantly lower alliance than those with no financial stress. There was no such difference found for clients in the teletherapy cohort. This result may be related to recent findings on the influence of pandemic-related financial stress on mental health factors and psychological wellbeing in college students (Fruehwirth et al., 2021). It may be the case that before the pandemic, treatment delivered in (in-person) counseling centers was not adequately or sufficiently addressing needs of clients with high financial stress, which may have been reflected in or have an impact on the client's experience of the bond or collaboration with therapists. With the increase of financial difficulties experienced by many after the emergence of the pandemic (Mckenzie et al., 2014; Son et al., 2020), it is possible that therapists focused more systematically or explicitly on such difficulties, perhaps allowing them to be more responsive to the needs of their clients experiencing more financial stress than others. As such, it may be that alongside the other benefits, teletherapy can serve as an equalizer of some of the mental healthcare inequities observed in in-person treatment, which would be of value in the context of recent emphasis on the need of disseminating mental health services at scale (Kazdin, 2018). Yet, the potential higher likelihood of therapists addressing financial stress may have had less to do with the modality of treatment itself and more to do with the ongoing restrictions associated with the pandemic. Because of the lack of random assignment, it is possible that these differences among clients in their perceptions of alliance and measures of residual psychological distress were due to the context of the COVID-19 pandemic, and may thus not generalize to these psychotherapy variables in other contexts.

This study also has implications for university and college counseling centers, many of which are now navigating questions of flexible treatment modality for their clientele following the emergence of the

pandemic. These findings support initiatives by counseling center staff to advocate for this flexibility, especially as it pertains to work environments, as the results indicate equal effectiveness in both in-person and teletherapy treatment modalities for process and outcome.

This study had several limitations. For one, client's preference about treatment modality was not taken into account. Given the near unanimous use of in-person services pre-pandemic and the widespread use of teletherapy after the onset of COVID-19, clients receiving therapy in this study were offered the sole option of either in-person or teletherapy services depending on when they initiated treatment. This may have resulted in a selection bias, which is typically accounted for by random selection in studies similar to this one, although the current study employed a matching process to address this concern. A context where remote service provision is the only modality available, where neither the therapist nor client had a choice in which modality is used, may have influenced relational process variables like therapeutic alliance. Client preferences are a critical part of service delivery, and there may have been a shift in attitudes towards teletherapy compelled during the COVID-19 pandemic due to the lack of modality options available. This lack of preference that existed pre-COVID-19 and immediately after the onset may not reflect the reality of current options for psychotherapeutic care, as access to both modalities is currently increasing. Additionally, despite the limitation describe above, the current study is addressing the overrepresentation of research where clients elect to receive teletherapy rather than available in-person treatment, a choice which may itself influence therapeutic alliance.

Secondly, therapeutic alliance was measured in a limited way. Repeated assessments of the alliance may have provided a more accurate depiction of this construct than an average score across treatment. In addition, although the current study measured therapeutic alliance at every session, the SAI was administered before the next session. Administering the instrument immediately after the session it was aimed to assess may have provided a more proximal and valid estimate of the alliance. Additionally, measuring therapist-rated alliance may benefit related research questions in future studies.

Another limitation of the study is the relevant context of therapy delivery. As emphasized in the introduction, many previous studies have examined therapeutic alliance and clinical outcome in a broad variety of contexts. The current study pertains specifically to one subset of the population: college student clients receiving services in a short-term, integrative model at a university counseling center. Thus, the findings of this study may not generalize to psychotherapies that deviate from those circumstances, such as long-term treatment or that which is delivered using a specific treatment approach.

Moreover, exploratory moderator analyses did not account for intersectionality, as only one demographic predictor was analyzed at a time. Although mixed results have been found regarding college students, some disparities have been shown to exist with respect to membership in multiple minority groups (Hayes et al., 2011). Future research will need to account for intersectionality as a central issue and investigate its influence on alliance and outcome over and above the impact of any one demographic variable.

Further, this study did not account for other variables common in the study of teletherapy delivery, for example, increased technological difficulties, competing stimuli and distractions, and drastic changes to communication such as slower dialogue, heightened need for turn-taking while speaking, and less opportunity for nonverbal communication. These factors may be moderators of process and outcome variables and should be examined in future studies.

Future research should also account for factors that may influence perceptions of the therapeutic alliance, such as the proportion of in-person services delivered while wearing masks. This detail of face-to-face treatment and other modes of services delivery have the potential to influence alliance formation and other relational aspects of therapy, perhaps linked to interpersonal process concerns that clinicians have noted in previous studies.

Author Note

Disclosure Statement

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