Preliminary validation of the Therapy Mode Preference Scale: Evaluating comparative effectiveness of virtual and in-person mental health care

Brianna Cerrito, Jamie Xiao, Amanda Fialk, Frank Buono

Submitted to: JMIR Formative Research
on: August 16, 2024

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Brianna Cerrito[1] MS; Jamie Xiao[1] BA; Amanda Fialk[1] PhD, LCSW, LICSW; Frank Buono[2] PhD

[1]The Dorm New York US
[2]Yale School of Medicine New Haven US

Corresponding Author:
Brianna Cerrito MS
The Dorm
175 W 72nd Street
New York
US

Abstract

Background: The use of virtual mental healthcare increased rapidly in 2020 as a critical response to the COVID-19 pandemic, effectively serving as a contact-free alternative to receiving treatment. While virtual care remains a viable option for individuals with geographic and physical barriers to treatment, there are several perceived therapeutic disadvantages (e.g., missing nonverbal signals, handling crises, confidentiality, weakened social connection in group therapy).

Objective: The present study sought to develop and validate a survey designed to measure effectiveness of virtual therapy versus in-person treatment across key therapeutic factors (i.e., therapeutic alliance, engagement, rapport, confidentiality).

Methods: An exploratory factor analysis (EFA) was conducted to understand factor structure, and Cronbach's alpha was utilized to determine internal consistency. Incremental validity was demonstrated through a hierarchical linear regression.

Results: The EFA revealed a three-dimensional factor structure. Three factors accounted for 61% of the variance and preliminary Cronbach's alpha (? =0.71) indicates a satisfactory level of internal consistency. Hierarchical linear regression indicated that the Client Satisfaction Questionnaire (CSQ) accounts for additional variance in the Therapy Mode Preference Scale (TMPS).

Conclusions: Continual research is warranted to expand the current findings, by validating this standardized tool for assessing the therapeutic impact of virtual versus in-person care in a generalizable population.

(JMIR Preprints 16/08/2024:65477)
DOI: https://doi.org/10.2196/preprints.65477

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Preliminary Validation of the Therapy Mode Preference Scale: Evaluating Comparative Effectiveness of Virtual and In-Person Mental Health Care

Brianna Cerrito, MS[1], Jamie Xiao, B.A.[1], Amanda Fialk, Ph.D.[1], and Frank D. Buono, Ph.D.[2]

1- The Dorm, New York, New York

2- Yale School of Medicine, New Haven, Connecticut

Corresponding Author:

Frank D. Buono, PhD
Research Scientist
Department of Psychiatry
Yale School of Medicine
300 George Street
New Haven, CT, 06511
E: frank.buono@yale.edu
P: 203-292-0980

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Conclusions: Continual research is warranted to expand the current findings, by validating this standardized tool for assessing the therapeutic impact of virtual versus in-person care in a generalizable population.

Keywords: virtual teletherapy; young adult mental health treatment; in-person therapy; virtual mental health care

Introduction

The use of virtual mental healthcare increased rapidly in 2020 as a critical response to the COVID-19 pandemic, effectively serving as a contact-free alternative to receiving treatment [1-3]. Virtual care remains a viable option for individuals with geographic and physical barriers to treatment, and recent research has demonstrated that virtual therapy can be as effective as in person sessions for treatment outcomes [1,4,5]. However, there are also several perceived therapeutic disadvantages to virtual therapy (e.g., missing nonverbal signals, handling crises, confidentiality, weakened social connection in group therapy) [2,3,6-8]. These disadvantages can affect the relationship between clinician and client, which has been proven to be a key factor in treatment outcomes [9-12].

Virtual settings can provide a convenient space for clients, but they also offer a set of disadvantages in maintaining the therapeutic relationship. A recent study examining the impact of virtual care on

clients enrolled in chronic pain therapy reports that while virtual sessions may provide a more comfortable setting for the client, virtual treatment is also associated with artificial dialogue and superficial connection, lower levels of empathy, and greater self-consciousness [13]. Additionally, clinicians and clients who have experienced in-person therapy report that the personal aspects of therapy (i.e. connection, vocal nuances, nonverbal communication and body language) were missing from virtual therapy, making it overall less effective [14]. Other disadvantages to virtual therapy include being unable to pick up on non-verbal cues, issues with confidentiality, and fatigue associated with technology use [6,8,15]. Though virtual care can be useful in providing access to those who may be unable to attend in person, the drawbacks to these therapy sessions are also clinically significant factors that should be considered.

Current research lacks validated scales that comprehensively measure the effects of virtual versus in-person therapy. Weaver et al. (2021) review of telehealth scales explains that many of the existing instruments examine the perceived quality of communication and technology interface but not specific therapeutic effects; for instance, the Telemedicine Satisfaction and Usefulness Questionnaire (TSUQ) only measures patient satisfaction with telehealth services, while the Zoom Exhaustion & Fatigue Scale (ZEF Scale) measures only the effect of using technology for a prolonged period [15-17]. Though validated, these scales are unable to compare the therapeutic factors of in-person and virtual care nor determine the effectiveness of both mediums. Other scales also fail to provide quantified validation, such as the Telehealth Usability Questionnaire (TUQ), which evaluates both satisfaction of telehealth care and technology interface but is not properly validated using psychometric measures [17,18].

While published literature has explored client satisfaction within virtual therapy and the effect of using the technology virtual care demands, there is a clear gap in research examining validated surveys designed to evaluate the comparative therapeutic effectiveness of virtual and in-person mediums of care [15-18]. Thus, the authors of this study sought to develop a survey that could evaluate the comparative effectiveness of virtual and in-person care from a therapeutic perspective.

To establish initial construct validity, we hypothesized that factor analysis would identify three subscales (i.e., therapeutic factors in virtual care, therapeutic factors in in-person care, and general factors in virtual care). We also hypothesized that TMPS desirability subscales would be significantly, positively associated with existing virtual care metric outcomes and explain unique additional variance above and beyond endorsement ratings. Our third hypothesis was that TMPS subscales would explain variance in virtual care related outcomes above and beyond existing measures of virtual care satisfaction and fatigue.

Methods

Participants

A sample of clients who experienced both virtual and in-person therapy at an intensive outpatient mental health treatment program for young adults, from April 2020 through June 2022. A total of 439 individuals were initially recruited for the study. Inclusion criteria were: (1) active clients at The Dorm between April 2020 and June 2022, (2) provided informed consent, and (3) at least 18 years of age. Exclusion criteria were: (1) unfit to complete the survey due to medical or psychological constraint, (2) not fluent in the English language, (3) unwilling to complete the entire survey. In total 118 individuals opted in to complete the study, but 29 participants did not fully complete it, thus failing to meet inclusion/exclusion criteria. Of the 29 participants, the reasons for lack of completion were as follows: failed to input proper research ID (n=2), completed demographics, only (n=4), did

not complete the ZEF (n=3), did not complete ZEF and CSQ (n=6), did not complete ZEF, CSQ, and TMPS (n=14). A total of 89 participants met criteria to be included in the analysis (Figure 1).

Measures

The Therapy Mode Preference Scale is a 15-item self-report assessment that evaluates virtual care and in-person care across key therapeutic and technical domains. This survey contains 3 subscales (general factors in virtual care, the therapeutic impact of virtual care, the therapeutic impact of in-person care) with 5 items in each scale. The responses are rated on a 5-point Likert scale (*1 = Very Untrue, 2 = Untrue, 3 = Neutral, 4 = True, 5 = Very Untrue*), taking on average 7.5 minutes.

The Client Satisfaction Questionnaire (CSQ-8) is an 8-item survey used to assess satisfaction of client experience (α=.93) [19]. Given the root of each item varies (i.e., “How would you rate the quality of service you received?”; “How satisfied are you with the amount of help you received?”), the anchors vary across each of the 8 items. All items are rated on a 4-point scale [20].

The Zoom Exhaustion Fatigue Scale (ZEF) is a 15-item scale measuring 5 aspects of fatigue experienced in Zoom video conferences, which include general (α=.90), visual (α=.88), social (α=.87), motivational (α=.93), emotional (α=.93) (15). All items are measured on a 5-point Likert-scale (*1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Very, 5 = Extremely)* except for two frequency items *(1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always*).

Procedures

Item Generation

Item generation and initial questionnaire development were conducted for The Virtual Care Study (TMPS) through a mixed-methods approach that included a review of the existing literature, input from seasoned clinicians, and already validated scales on the topic.

A comprehensive literature review was conducted, encompassing relevant studies on virtual care, the therapeutic relationship, and peer connection. The review highlighted recurring themes such as those related to technology (i.e., technical difficulties, confidentiality concerns), and rapport factors (i.e., connectedness and comfort in the therapeutic and peer relationships), underscoring the need for a questionnaire that addresses general factors in virtual care as well as specific rapport and therapeutic alliance questions in virtual versus in-person settings.

Clinician consultation involved 3 expert clinicians in social work who were selected based on their extensive experience in working with a multi-diagnostic young adult population in both virtual and in-person settings. During feedback sessions, clinicians provided valuable insights into key aspects of therapy that are important for treatment progress, informing the item generation process as well as selection and refinement of questionnaire items. At each session, conversations were recorded with each clinician, followed by transcription of comments. Results were analyzed to determine the most effective and essential aspects of therapy that would be necessary to include in the TMPS. Content deemed critically important was utilized for the first round of item generation.

Following expert feedback, items were further adapted and generated based on input from a selection of validated scales related to virtual care. The first survey that questions were adapted from is the Client Satisfaction and Experience with Telepsychiatry Survey [21]. This is a 20-item survey that assesses satisfaction with telepsychiatry on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). Items were also adapted from the Group Engagement Measure is a 27-item survey that assesses engagement in group therapy across 7 subscales (i.e., attending, contributing, relating to

worker, relating with members, contracting, working on own problems, working with others' problems) on a 5-point Likert scale (1=rarely or none of the time, 5=most or all of the time) [22].

Generated items were formulated based on input from clinicians, while other adapted items were based on the content of established scales (Table 2).

Following iterative cycles of brainstorming and refinement, the result was a selection of three questions: general factors in virtual care (e.g., confidentiality, privacy, audio issues), therapeutic factors in virtual care, and therapeutic factors in in-person care.

Survey Administration

Surveys were administered via email. Recruitment emails were sent to clients who had sought intensive outpatient treatment who were actively seeking treatment at The Dorm between April 2020 and June 2022. All individuals were provided with an ID number for confidentiality, as all surveys were completed online. Informed consent was obtained via e-signature prior to survey completion. Using Qualtrics survey platform, clients filled out the TMPS and two additional surveys for the purpose of assessing concurrent validity (CSQ-8, ZEF) [15,20]. The study was approved by the Institutional Review Board at Yale School of Medicine. Written informed consent was obtained from all participants prior to their inclusion in the study, in accordance with the ethical standards established by the Declaration of Helsinki.

Data Analytic Strategy

Exploratory Factor Analysis (EFA) was conducted on the TMPS using SPSS (IBM). EFA on the initial 15 items was conducted using principal component analysis with Varimax rotation (Kaiser Normalization). Three factors were retained, as the survey was designed to have 3 sections, each measuring different aspects of mental health care by medium. Items were retained if they had a primary factor loading greater than .30 and did not cross-load onto multiple factors. Items that had factor loadings before .30 were removed from the scale. EFA was repeated using principal component analysis with Varimax rotation to confirm factor structure results if items were removed. Once simple structure was achieved, a reliability analysis was conducted for each retained factor (3), excluding the eliminated items from the analysis. Properties of the TMPS were tested among the full sample.

First, the internal consistency was examined using Cronbach's alpha. Second, concurrent validity was tested using bivariate correlations with two outcome variables: Zoom Exhaustion and Fatigue Scale (ZEF) and Client Satisfaction Questionnaire (CSQ). Last, incremental validity of the TMPS was via a series of hierarchical linear regression models. CSQ was entered at Step 1, and ZEF was entered at Step 2. Prior to analysis, correlations were examined to ensure multicollinearity was within normal limits for running the analysis.

Results

Descriptive Statistics

Participants were young adults between the ages of 18 and 34 (M = 23.64, SD = 0.37) seeking treatment at an intensive outpatient mental health treatment program in New York, NY and Washington, D.C. (Table 1). Of the 90 clients in the study, 37% identify as cisgender female, 38% cisgender male, 16% transgender non-binary (TGNB), 4% unknown and/or exploring, and 5% did not list gender. Majority of the clients were students (40%) and had a history of trauma (76%). Some clients reported having been diagnosed with a substance use disorder (31%). When asked about frequency of virtual sessions per week, most of the clients reported attending 1-5 virtual care

sessions per week (83%), with fewer clients reporting 6-10 sessions per week (11%), 11-15 sessions per week (1%), 16-20 sessions per week (3%), and 21+ sessions per week (1%).

Table 1. Demographics of Admission Intakes

Demographic Variables	N	Percentage
Gender		
Cisgender Female	33	37%
Cisgender Male	34	38%
Transgender non-binary (TGNB)	14	16%
Unknown and/or exploring	4	4%
Did not disclose gender	5	5%
Employment Status		
Employed	30	33%
Student	36	40%
Unemployed	24	27%
History of Trauma		
Yes	68	76%
No	22	24%
Substance Use Diagnosis		
Yes	28	31%
No	62	69%
Frequency of Virtual Sessions Attended per Week at The Dorm		
1-5	75	83%
6-10	10	11%
11-15	1	1%

16-20	3	3%
21+	1	1%

Exploratory Factor Analysis

Of the 15 items, 14 were above the .3 minimum threshold. One item (question 8) was excluded from the analysis as it loaded on two factors in the Principal Component Analysis (Table 2). A three-factor EFA was utilized to examine the factorability of 14 items in the Virtual Care Study. The data were screened for univariate outliers, and the minimum amount of data for factor analysis was satisfied. Factorability of the 14-item Virtual Care Study was examined using several well-recognized criteria. All 14 items correlated at a minimum of .30 with at least one other item (Table 4). Kaiser-Meyer-Olkin measure of sampling adequacy was .75, above the recommended value of .50 [23]. Bartlett's test of sphericity was significant ($\chi 2 = (91) = 528.41$, $p < .001$). To determine the number of factors to extract, a scree plot of the eigenvalues was examined using the elbow criterion, where the tapering of the plot clearly indicated a unidimensional structure [24].

Table 2. Therapy Mode Preference Scale

Directions: In your overall experience receiving virtual treatment at the Dorm, please rate the statements based on how true they are to you. Please be honest in your responses and review the ranking system below before proceeding.

1= Very Untrue; 2= Untrue; 3=Neutral; 4 = True; 5 = Very True

General.

1. I believe virtual sessions at the Dorm are just as effective as in-person sessions. [a]
2. I was able to see my clinicians clearly in virtual sessions. [a]
3. I was able to hear my clinicians clearly in virtual sessions. [a]
4. I experienced technical difficulties that impacted my experience with virtual care.
5. My confidentiality was protected in virtual sessions. [a]

Virtual. Please answer the following questions regarding virtual care.

6. I changed because of virtual sessions. [a]
7. My clinician was more approachable in virtual sessions.
8. I was able to connect with my therapist more in virtual sessions.
9. I was able to maintain relations with other clients in virtual sessions. [b]
10. I was more comfortable sharing feelings in virtual sessions. [a]

in-person. Please answer the following questions regarding in-person care.

11. I changed because of in-person sessions. [a]
12. My clinician was more approachable in in-person sessions.
13. I was able to connect with my therapist more in in-person sessions.
14. I was able to maintain relations with other clients in in-person sessions. [b]
15. I was more comfortable sharing feelings in in-person sessions. [a]

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[a] Item adapted from the Client Satisfaction and Experience with Telepsychiatry Survey [21]

[b] Item adapted from the Group Engagement Measure [22]

Diagonals of the anti-image correlation matrix exceeded .3, supporting inclusion of each item in the factor analysis. Communalities ranged between .37 and .80, confirming all other items shared some common variance. Principal component analysis with varimax rotation was utilized because the primary purpose was to identify and compute scores for the correlated factors underlying the Virtual Care Study (Table 3). Three factors accounted for 61% of the variance. The first factor explained 25% of the variance, the second factor explained 18% of the variance, and the third factor explained 18% of the variance. A varimax rotation provided the best-defined factor structure. Preliminary Cronbach's alpha (α =0.71) indicates a satisfactory level of internal consistency for our measurement instrument.

Table 3. Factor Matrix for a Single-Factor Model

Survey Items	Factor 1	Factor 2	Factor 3
1) I believe virtual sessions at The Dorm are just as effective as in-person sessions	-.14	.23	.78
2) I was able to see my clinicians clearly in virtual sessions	.05	.80	.18
3) I was able to hear my clinicians clearly in virtual sessions.	.09	.87	.20
4) I experienced technical difficulties that impacted my experience with virtual care.	.04	.73	-.13
5) My confidentiality was protected in virtual sessions.	.17	.65	.04
6) I changed because of virtual sessions.	.25	.01	.64
7) My clinician was more approachable in virtual sessions.	-.14	-.19	.74
9) I was able to maintain relations with other clients in virtual sessions.	-.05	.13	.59
10) I was more comfortable sharing feelings in virtual sessions.	-.28	.08	.68
11) I changed because of in-person sessions.	.67	.23	.10

Survey Items	Factor 1	Factor 2	Factor 3
12) My clinician was more approachable in virtual in-person sessions.	.86	-.02	-.12
13) I was able to connect with my therapist more in in-person sessions.	.86	.07	-.15
14) I was able to maintain relations with other clients in in-person sessions.	.79	.21	-.08
15) I was more comfortable sharing feelings in in-person sessions.	.82	-.03	-.11

Concurrent Validity

Correlation coefficients were evaluated for each of the scales utilized (Table 4). ZEF and CSQ (-.29), ZEF and TMPS (-.31), and CSQ and TMPS (.50) were significantly correlated (p<.01). Higher CSQ scores indicate higher satisfaction whereas higher ZEF scores indicate more extreme Zoom fatigue.

Table 4. Correlation Matrix of CSQ, ZEF, and TMPS

	CSQ	ZEF	TMPS
CSQ	1		
ZEF	-.29**	1	
TMPS	.50**	-.31**	1

[a] p<.001

Incremental Validity

The hierarchical linear regression revealed a highly significant relationship between the CSQ and TMPS. Incremental validity is significant, it is only with the CSQ. A hierarchical linear regression was conducted for the TMPS with CSQ and ZEF scales entered the model. The coefficient for CSQ is significant (p<.001) but not for ZEF (p=.06), indicating that only CSQ accounted for additional variance in the TMPS.

Multicollinearity was within normal limits for all models. With Virtual Care Study and CSQ entered the model, CSQ significantly accounted for additional variance in the Virtual Care Study (p<.01) (Table 5). With the ZEF entered the model, ZEF did not account for further variance (p=.06).

Table 5. Hierarchical regression of analysis of predictors of Virtual Care Study

Predictors	Beta	Standard Error	Standardized Beta	t-value	p-value
CSQ	.04	.01	.45	4.69	<.01
ZEF	-.10	.05	-.18	-1.88	.06

Discussion

The present study developed and examined the initial construct validity and psychometric properties of the TMPS. Results of the reliability analysis indicate that the TMPS has good reliability and the EFA supported a 14-item 3-factor structure. It can be understood that the TMPS is valid as a measure of the following three factors: Therapeutic Impact of In-person Care, General Factors in Virtual Care (i.e., technology), and Therapeutic Impact of Virtual Care. The authors found that ZEF, CSQ, and TMPS were all significantly correlated, indicating agreement between the two chosen assessments measuring the same construct, pointing to good concurrent validity. The CSQ significantly accounted for additional variance in the TMPS, whereas ZEF did not, suggesting that client satisfaction has predictive power over ratings of therapy in different mediums of care.

The therapeutic alliance in treatment is a critical component for the potential of successful outcomes; various meta-analyses have found a moderate but robust correlation between the quality of the therapeutic alliance and treatment outcomes [9,11,12]. Research shows that patients' perception of patient-clinician interaction is one of the most important determinants of satisfaction within clinical service [25]. In addition, having a good rapport between therapist and client was found to be correlated with better outcomes and significant improvements in client well-being [10]. For this reason, the TMPS was designed to evaluate the therapeutic relationship between client and therapist, as impacted by virtual and in-person interactions. Existing assessments evaluate outcomes solely based on symptom reduction, rather than the therapeutic relationship.

Recent research reports that outcomes are not significantly different between in-person and telehealth treatment for decreasing depressive symptoms and increasing quality of life, as measured by the Quick Inventory of Depressive Symptomatology-Self-Report (QIDS-SR) and Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) [26]. Some studies even indicate that treatment completion rate is higher for those in telehealth than those required to be in person [27]. However, following extensive literature review, there is a gap in validated scales that can effectively measure the comparative effectiveness of virtual and in-person therapy to ensure the best possible quality of care for clients. While virtual care has several therapeutic benefits, it is also important to consider that there are therapeutic factors natural to in-person contact that may be weakened or negatively impacted within a virtual environment (e.g., social connection, therapeutic alliance and relationship-building) [2,3,6-8]. Previously validated assessments measuring virtual care focus indirectly on therapeutic impact, by measuring satisfaction of care received and topics-related to social, emotional, and motivational aspects of virtual mediums (i.e., Zoom video conferencing) [15,19]. For this reason, the authors sought to develop a survey that focused specifically on the comparative therapeutic impact of medium of care to uncover how virtual care might differ from the effect of in-person therapy.

Clinical Implications

There are important clinical and treatment implications of the current study. While digital interventions indeed have benefits for rural communities and provide added conveniences (e.g., lack

of commuting or late-night options), in-person treatment is preferred in certain situations (e.g. high acuity). Moreover, understanding the impact of the therapeutic alliance between the therapist and the patient is critical. Increasing therapeutic alliance will increase the likelihood of a stronger emotional connection and goal directed therapeutic environment, in either a digital or in-person setting. In the utilization of the current assessment, therapists can deem an important intermediary understanding of the ideal treatment environment, which can directly affect the patient's well-being.

Emerging evidence for non-psychotic populations utilizing virtual settings have recently demonstrated feasibility [28]. Given these findings, the administration of the current assessment could be useful for future clinical trials. Researchers can use the current assessment to assess and control for baseline conditions and potential exclusionary criterion. In doing so, the future clinical trials would reduce the likelihood of potential errors and increase the treatment therapeutic effects.

Limitations

There were several limitations in the present study that should be considered in future research: 1) Clients were a specific set of individuals in intensive outpatient mental health treatment in New York, New York and Washington, D.C. Due to the specificity of this sample, the findings may not be generalizable to other populations. It is important that future research seeks to validate the present survey in diverse populations. 2) Discriminant validity was not assessed in the present study but is warranted in future research. 3) Sample size was low, and one item had to be dropped due to not loading with the other factors. 4) There was a lack of diversity in the study, as most clients were white individuals from high socioeconomic status. 5) Acuity levels were not accounted for in this sample either, however, it is important to note that clients included in the study have varying acuity, which ranges from severe to mild.

Conclusions

It is important to be able to evaluate the impact of virtual mediums on therapeutic factors in care. The current study provides support for a potential evaluation tool that could be of use for mental health clinicians conducting hybrid or virtual care using technology-based conferencing. Based on the results of this study, preliminary psychometrics are favorable for a new survey designed to evaluate the comparative effectiveness of virtual and in-person mental health treatment. The goal is for this assessment tool to be used in clinical settings, to ensure therapeutic impact is as effective in a virtual setting as in-person. Continual research is warranted to establish a standardized tool for assessing the therapeutic impact of virtual versus in-person care.

Acknowledgements

The authors confirm contribution to the paper as follows: study conception and design: Buono, F. D., Cerrito, B., Fialk, A.; data collection: Cerrito, B.; analysis and interpretation of results: Buono, F.D., Cerrito, B.; draft manuscript preparation: Cerrito, B., Xiao, J., Fialk, A., Buono, F.D. All authors reviewed the results and approved the final version of the manuscript.

Conflicts of Interest

The authors declare that they have no conflicts of interest to report regarding the present study.

Abbreviations

TMPS: Therapy Mode Preference Scale
CSQ: Client Satisfaction Questionnaire
ZEF: Zoom Exhaustion and Fatigue Scale

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Supplementary Files

CONSORT (or other) checklists

Figure 1. Consort diagram of recruitment process.
URL: http://asset.jmir.pub/assets/30052914b01a68fe3c14c1e4d99eff51.pdf