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Combined Internet-based and tele group treatment: Feasibility, efficacy, and mechanisms of change of intense cognitive behavioral treatment for depression

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Abstract

Blended group therapy (bGT) merges computer- and app-support with face-to-face sessions. The novel format facilitates monitoring of individual therapy progress, and allows lateral patient-therapist communication for exercising skills, or for disclosing sensitive matters. Simultaneously, bGT is of limited geographical reach, and low population density can hamper provision of psychological groups. The present study therefore investigates the feasibility of tele-based bGT.

Sixty-one mildly to moderately depressed participants from Salzburg, Bavaria, and Upper Austria were randomized to tele-based bGT or a waiting list control group. Seven-week intense treatment comprised weekly preparatory online modules together with teleconference group sessions.

Large treatment effects were observed for depression (CES-D: $d=0.99$, $p<.001$; PHQ-9: $d=0.87$, $p=.002$), together with large effects for cognitive behavioral skills (cognitive style, and behavioral activation, $d=0.88-0.97$). Changes in skills mediated treatment outcomes for CES-D and PHQ-9, suggesting comparable mechanisms to face-to-face treatment. Both putative moderators, therapeutic alliance and group cohesion, however, failed to predict outcome ($p=.289$), or only exhibited statistical tendencies ($p=.049$ to $.071$). Client satisfaction (CSQ), system usability (SUS), and treatment adherence were high.

Tele-based bGT offers innovative treatment that is less dependent on population densities and commuting distances, facilitating the provision of low-threshold group treatment. Results indicate that intense tele bGT is clinically effective by fostering core CBT skills. While findings suggest that working alliance and group cohesion can be established online, their relation to treatment outcome needs to be further investigated. Even though observed patterns were consistent across applied tests, present findings need to be interpreted with awareness of limited sample size.

Keywords: Internet-based treatment; tele therapy; group therapy; therapeutic process; working alliance; depression; Covid-19

Box 1. Overview of intervention elements.

Week	Internet intervention	Online feedback on tasks	Tele group session	Additional material during session
1			Opening, icebreaker session, introduction to treatment	
2	Relation of thoughts, feelings, and behavior Behavioral observation	✓	Welcome - reflection on content of Internet intervention – progress with exercises – open issues – practical support with frequent obstacles – additional content and exercises – feedback round and session closing	Exercise on values
3	Sleep and depression Sleep diary	✓		Worrying Sleep hygiene
4	Behavioral activation, activity scheduling	✓		Habits Activity list
5	Behavioral activation / self-management	✓		
6	Recognizing negative thoughts	✓		Acceptance exercise
7	Challenging negative thoughts	✓	Transfer and conclusion of the group	

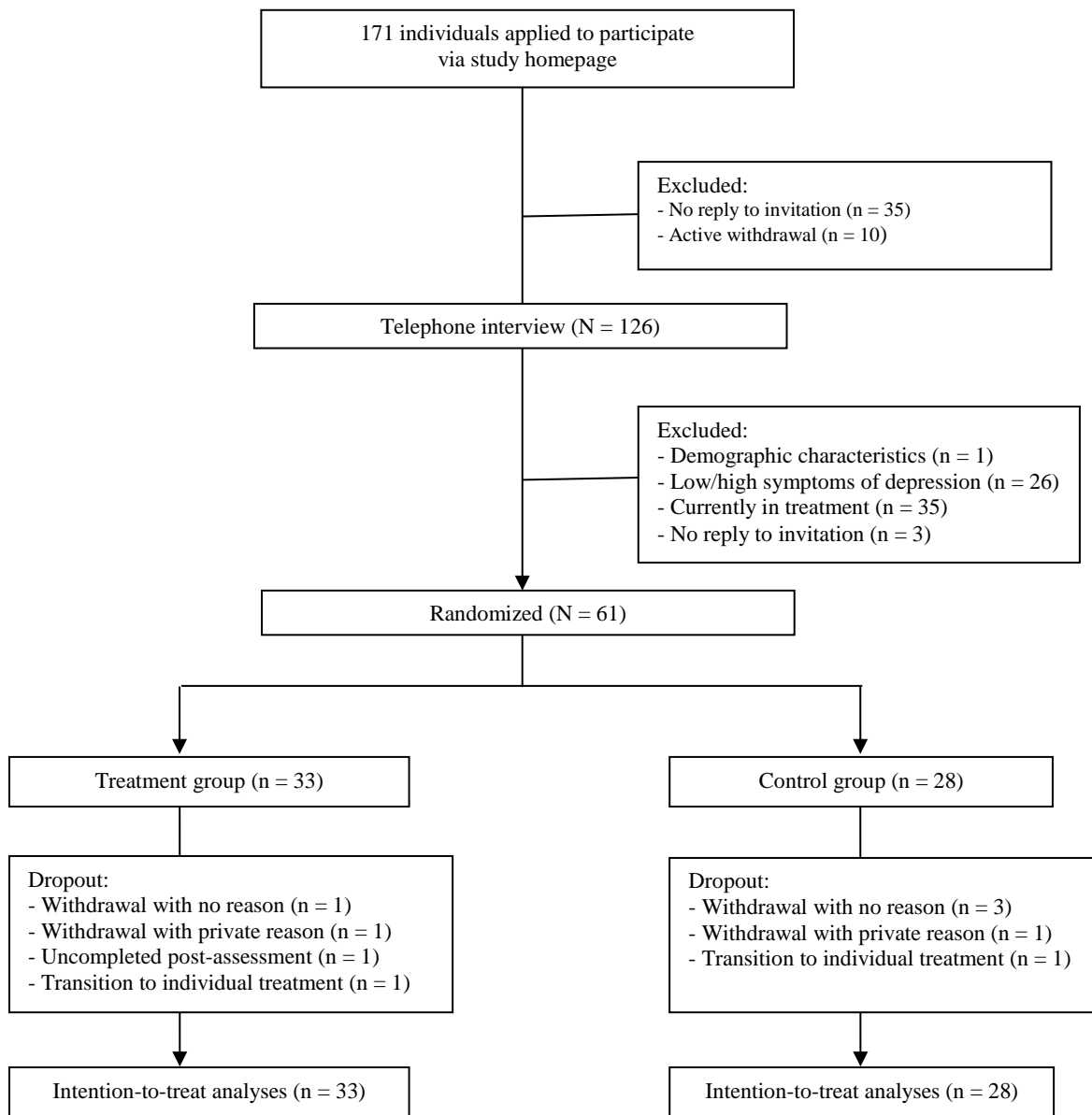


Figure 1. Study's flow chart

Literature

- Aguilera, A., Bruehlman-Senecal, E., Demasi, O., & Avila, P. (2017). Automated text messaging as an adjunct to cognitive behavioral therapy for depression: a clinical trial. *Journal of medical Internet research*, 19(5), e148.
- Andersson, G. (2018). Internet interventions: past, present and future. *Internet interventions*, 12, 181-188.
- Apolinário-Hagen, J., Vehreschild, V., Alkoudmani, R.M., 2017. Current views and perspectives on e-mental health: an exploratory survey study for understanding public attitudes toward internet-based psychotherapy in Germany. *JMIR Ment. Heal.* 4, e8.
- Banbury, A., Nancarrow, S., Dart, J., Gray, L., & Parkinson, L. (2018). Telehealth interventions delivering home-based support group videoconferencing: systematic review. *Journal of medical Internet research*, 20(2), e25.
- Bangor, A., Kortum, P., & Miller, J. (2009). Determining what individual SUS scores mean: Adding an adjective rating scale. *Journal of usability studies*, 4(3), 114-123.
- Baumeister, H., Reichler, L., Munzinger, M., & Lin, J. (2014). The impact of guidance on Internet-based mental health interventions—A systematic review. *Internet Interventions*, 1(4), 205-215.
- Berger, T., Krieger, T., Sude, K., Meyer, B., & Maercker, A. (2018). Evaluating an e-mental health program (“deprexis”) as adjunctive treatment tool in psychotherapy for depression: Results of a pragmatic randomized controlled trial. *Journal of affective disorders*, 227, 455-462.
- Berryhill, M. B., Culmer, N., Williams, N., Halli-Tierney, A., Betancourt, A., Roberts, H., & King, M. (2019). Videoconferencing psychotherapy and depression: a systematic review. *Telemedicine and e-Health*, 25(6), 435-446.
- Bhugra, D., Tasman, A., Pathare, S., Priebe, S., Smith, S., Torous, J., ... & First, M. B. (2017). The WPA-lancet psychiatry commission on the future of psychiatry. *The Lancet Psychiatry*, 4(10), 775-818.
- Bormann, B., Burlingame, G. M., & Strauß, B. (2011). Der Gruppenfragebogen (GQ-D). *Psychotherapeut*, 56(4), 297-309.

- Boß, L., Lehr, D., Reis, D., Vis, C., Riper, H., Berking, M., & Ebert, D. D. (2016). Reliability and validity of assessing user satisfaction with web-based health interventions. *Journal of Medical Internet Research*, 18(8), e234.
- Brooke, J. (1996). SUS: A “quick and dirty” usability scale. In P. W. Jordan, B. Thomas, B. A. Weerdmeester, & I. L. McClelland (Hrsg.), *Usability Evaluation in Industry* (S. 189-194). London: Taylor.
- Burlingame, G. M., McClendon, D. T., & Alonso, J. (2011b). Cohesion in group therapy. *Psychotherapy*, 48(1), 34-42.
- Carroll, K. M., Kiluk, B. D., Nich, C., Gordon, M. A., Portnoy, G. A., Marino, D. R., & Ball, S. A. (2014). Computer-assisted delivery of cognitive-behavioral therapy: efficacy and durability of CBT4CBT among cocaine-dependent individuals maintained on methadone. *American journal of Psychiatry*, 171(4), 436-444.
- Choi, N. G., Hegel, M. T., Marti, C. N., Marinucci, M. L., Sirrianni, L., & Bruce, M. L. (2014). Telehealth Problem-Solving Therapy for Depressed Low-Income Homebound Older Adults. *The American Journal of Geriatric Psychiatry*, 22(3), 263–271.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: L. Erlbaum Associates.
- Cristea, I. A., Huibers, M. J., David, D., Hollon, S. D., Andersson, G., & Cuijpers, P. (2015). The effects of cognitive behavior therapy for adult depression on dysfunctional thinking: A meta-analysis. *Clinical Psychology Review*, 42, 62-71.
- Dorow, M., Löbner, M., Pabst, A., Stein, J., & Riedel-Heller, S. G. (2018). Preferences for depression treatment including internet-based interventions: results from a large sample of primary care patients. *Frontiers in psychiatry*, 9, 181.
- Egede, L. E., Acierno, R., Knapp, R. G., Lejuez, C., Hernandez-Tejada, M., Payne, E. H., & Frueh, B. C. (2015). Psychotherapy for depression in older veterans via telemedicine: a randomised, open-label, non-inferiority trial. *The Lancet Psychiatry*, 2(8), 693-701.
- El Alaoui, S., Hedman, E., Kaldo, V., Hesser, H., Kraepelien, M., Andersson, E., ... & Lindefors, N. (2015). Effectiveness of Internet-based cognitive-behavior therapy for social anxiety disorder in clinical psychiatry. *Journal of consulting and clinical psychology*, 83(5), 902.

- Erbe, D., Eichert, H. C., Riper, H., & Ebert, D. D. (2017). Blending face-to-face and internet-based interventions for the treatment of mental disorders in adults: systematic review. *Journal of medical Internet research*, 19(9), e306.
- Etzelmueller, A., Radkovsky, A., Hannig, W., Berking, M., & Ebert, D. D. (2018). Patient's experience with blended video-and internet based cognitive behavioural therapy service in routine care. *Internet interventions*, 12, 165-175.
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, 39(2), 175-191.
- Flückiger, C., Del Re, A. C., Wampold, B. E., & Horvath, A. O. (2018). The alliance in adult psychotherapy: A meta-analytic synthesis. *Psychotherapy*, 55(4), 316.
- Friedl, N., Krieger, T., Chevreul, K., Hazo, J. B., Holtzmann, J., Hoogendoorn, M., ... & Berger, T. (2020). Using the Personalized Advantage Index for Individual Treatment Allocation to Blended Treatment or Treatment as Usual for Depression in Secondary Care. *Journal of clinical medicine*, 9(2), 490.
- Gentry, M. T., Lapid, M. I., Clark, M. M., & Rummans, T. A. (2019). Evidence for telehealth group-based treatment: A systematic review. *Journal of telemedicine and telecare*, 25(6), 327-342.
- Greene, C. J., Morland, L. A., Macdonald, A., Frueh, B. C., Grubbs, K. M., & Rosen, C. S. (2010). How does tele-mental health affect group therapy process? Secondary analysis of a noninferiority trial. *Journal of Consulting and Clinical Psychology*, 78(5), 746-750.
- Greene, C. J., Morland, L. A., Macdonald, A., Frueh, B. C., Grubbs, K. M., & Rosen, C. S. (2010). How does tele-mental health affect group therapy process? Secondary analysis of a noninferiority trial. *Journal of Consulting and Clinical Psychology*, 78(5), 746-750.
- Hautzinger M., Bailer M., Hofmeister D., & Keller F. (2012). *Allgemeine Depressions-Skala: ADS (2. Auflage)*. Göttingen: Hogrefe.
- Hautzinger, M., & Bailer, M. (1993). *Allgemeine Depressionsskala (ADS)*. Manual, Beltz.
- Hautzinger, M., & Bailer, M. (1993). *Allgemeine Depressions-Skala: ADS*. Weinheim: Beltz.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Publications.

- Holmes, E. A., Ghaderi, A., Harmer, C. J., Ramchandani, P. G., Cuijpers, P., Morrison, A. P., ... & Moulds, M. L. (2018). The Lancet Psychiatry Commission on psychological treatments research in tomorrow's science. *The Lancet Psychiatry*, 5(3), 237-286.
- Holmes, S.E., & Kivlighan, D.M., Jr. (2000). Comparison of therapeutic factors in group and individual treatment processes. *Journal of Counseling Psychology*, 47, 478-484.
- Hopko, D. R., Lejuez, C. W., Ruggiero, K. J., & Eifert, G. H. (2003). Contemporary behavioral activation treatments for depression: Procedures, principles, and progress. *Clinical psychology review*, 23(5), 699-717.
- Huys, Q. J., Renz, D., Petzschner, F., Berwian, I., Stoppel, C., & Haker, H. (2016). German Translation and Validation of the Cognitive Style Questionnaire Short Form (CSQ-SF-D). *PloS One*, 11(3), e0149530.
- Ivanov, V. Z., Enander, J., Mataix-Cols, D., Serlachius, E., Månsson, K. N., Andersson, G., ... & Rück, C. (2018). Enhancing group cognitive-behavioral therapy for hoarding disorder with between-session internet-based clinician support: A feasibility study. *Journal of clinical psychology*, 74(7), 1092-1105.
- Justicia, A., Elices, M., Cebria, A. I., Palao, D. J., Gorosabel, J., Puigdemont, D., ... & Pérez, V. (2017). Rationale and methods of the iFightDepression study: A double-blind, randomized controlled trial evaluating the efficacy of an internet-based self-management tool for moderate to mild depression. *BMC psychiatry*, 17(1), 143.
- Kazdin, A. E. (2007). Mediators and mechanisms of change in psychotherapy research. *Annu. Rev. Clin. Psychol.*, 3, 1-27.
- Königbauer, J., Letsch, J., Doeberl, P., Ebert, D. D., & Baumeister, H. (2017). Internet-and mobile-based depression interventions for people with diagnosed depression: a systematic review and meta-analysis. *Journal of affective disorders*, 223, 28-40.
- Kooistra, L., Ruwaard, J., Wiersma, J., van Oppen, P., & Riper, H. (2020). Working Alliance in Blended Versus Face-to-Face Cognitive Behavioral Treatment for Patients with Depression in Specialized Mental Health Care. *Journal of Clinical Medicine*, 9(2), 347.
- Lemmens, L. H., Müller, V. N., Arntz, A., & Huibers, M. J. (2016). Mechanisms of change in psychotherapy for depression: an empirical update and evaluation of research aimed at identifying psychological mediators. *Clinical Psychology Review*, 50, 95-107.

- Lindner, P., Nyström, M. B., Hassmén, P., Andersson, G., & Carlbring, P. (2015). Who seeks ICBT for depression and how do they get there? Effects of recruitment source on patient demographics and clinical characteristics. *Internet Interventions*, 2(2), 221-225.
- Löwe B., Spitzer R. L., Zipfel S., & Herzog W. (2002). PHQ-D. Gesundheitsfragebogen für Patienten [German version of the Patient Health Questionnaire]. Karlsruhe: Pfizer.
- Margraf, J. (2013). Mini-DIPS: diagnostisches kurz-interview bei psychischen störungen. Springer-Verlag.
- Margraf, J., Schneider, S., Ehlers, A., DiNardo, P., & Barlow, D. (2013). DIPS diagnostisches interview bei psychischen störungen: interviewleitfaden. Springer-Verlag.
- Nelson, E. L., Barnard, M., & Cain, S. (2003). Treating childhood depression over videoconferencing. *Telemedicine Journal and E-health*, 9(1), 49-55.
- Newman, M. G., Przeworski, A., Consoli, A. J., & Taylor, C. B. (2014). A randomized controlled trial of ecological momentary intervention plus brief group therapy for generalized anxiety disorder. *Psychotherapy*, 51(2), 198.
- Paganini, S., Teigelkoetter, W., Buntrock, C., & Baumeister, H. (2018). Economic evaluations of internet-and mobile-based interventions for the treatment and prevention of depression: a systematic review. *Journal of affective disorders*, 225, 733-755.
- Przeworski, A., & Newman, M. G. (2004). Palmtop computer-assisted group therapy for social phobia. *Journal of Clinical Psychology*, 60(2), 179-188.
- Richards, D., & Richardson, T. (2012). Computer-based psychological treatments for depression: A systematic review and meta-analysis. *Clinical Psychology Review*, 32(4), 329–342.
- Schmidt, J., Lamprecht, F., & Wittmann, W. W. (1989). Zufriedenheit mit der stationären Versorgung. Entwicklung eines Fragebogens und erste Validitätsuntersuchungen. PPM: Psychotherapie Psychosomatik Medizinische Psychologie.
- Schuman, D. L., Slone, N. C., Reese, R. J., & Duncan, B. (2015). Efficacy of client feedback in group psychotherapy with soldiers referred for substance abuse treatment. *Psychotherapy Research*, 25(4), 396-407.

- Schuster, R., Fichtenbauer, I., Sparr, V. M., Berger, T., & Laireiter, A. R. (2018a). Feasibility of a blended group treatment (bGT) for major depression: uncontrolled interventional study in a university setting. *BMJ open*, 8(3), e018412.
- Schuster, R., Kalthoff, I., Walther, A., Köhldorfer, L., Partinger, E., Berger, T., & Laireiter, A. R. (2019). Effects, Adherence, and Therapists' Perceptions of Web-and Mobile-Supported Group Therapy for Depression: Mixed-Methods Study. *Journal of medical Internet research*, 21(5), e11860.
- Schuster, R., Leitner, I., Carlbring, P., & Laireiter, A. R. (2017). Exploring blended group interventions for depression: Randomised controlled feasibility study of a blended computer-and multimedia-supported psychoeducational group intervention for adults with depressive symptoms. *Internet interventions*, 8, 63-71.
- Schuster, R., Pokorny, R., Berger, T., Topococo, N., & Laireiter, A. R. (2018). The advantages and disadvantages of online and blended therapy: survey study amongst licensed psychotherapists in Austria. *Journal of medical Internet research*, 20(12), e11007.
- Schuster, R., Schreyer, M. L., Kaiser, T., Berger, T., Klein, J. P., Moritz, S., ... & Trutschnig, W. (2020). Effects of intense assessment on statistical power in randomized controlled trials: Simulation study on depression. *Internet Interventions*, 100313.
- Schuster, R., Sigl, S., Berger, T., & Laireiter, A. R. (2018b). Patients' Experiences of Web-and Mobile-Assisted Group Therapy for Depression and Implications of the Group Setting: Qualitative Follow-Up Study. *JMIR mental health*, 5(3), e49.
- Simpson, S. G., & Reid, C. L. (2014). Therapeutic alliance in videoconferencing psychotherapy: A review. *Australian Journal of Rural Health*, 22(6), 280-299.
- Teismann, T., Ertle, A., Furka, N., Willutzki, U., & Hoyer, J. (2016). The German version of the Behavioral Activation for Depression Scale (BADs): A psychometric and clinical investigation. *Clinical Psychology and Psychotherapy*, 23(3), 217-225.
- Thase, M. E., Wright, J. H., Eells, T. D., Barrett, M. S., Wisniewski, S. R., Balasubramani, G. K., ... & Brown, G. K. (2018). Improving the efficiency of psychotherapy for depression: computer-assisted versus standard CBT. *American Journal of Psychiatry*, 175(3), 242-250.

- Topooco, N., Riper, H., Araya, R., Berking, M., Brunn, M., Chevreur, K., ... & Kleiboer, A. (2017). Attitudes towards digital treatment for depression: a European stakeholder survey. *Internet interventions*, 8, 1-9.
- Tuerk, P. W., Schaeffer, C. M., McGuire, J. F., Larsen, M. A., Capobianco, N., & Piacentini, J. (2019). Adapting Evidence-Based Treatments for Digital Technologies: a Critical Review of Functions, Tools, and the Use of Branded Solutions. *Current psychiatry reports*, 21(10), 106.
- Urech, A., Krieger, T., Möseneder, L., Biaggi, A., Vincent, A., Poppe, C., ... & Berger, T. (2019). A patient post hoc perspective on advantages and disadvantages of blended cognitive behaviour therapy for depression: A qualitative content analysis. *Psychotherapy research*, 29(8), 986-998.
- Vernmark, K., Hesser, H., Topooco, N., Berger, T., Riper, H., Luuk, L., ... & Andersson, G. (2019). Working alliance as a predictor of change in depression during blended cognitive behaviour therapy. *Cognitive behaviour therapy*, 48(4), 285-299.
- Vis, C., Mol, M., Kleiboer, A., Bührmann, L., Finch, T., Smit, J., & Riper, H. (2018). Improving implementation of eMental health for mood disorders in routine practice: systematic review of barriers and facilitating factors. *JMIR mental health*, 5(1), e20.
- Wilmers, F., Munder, T., Leonhart, R., Herzog, T., Plassmann, R., Barth, J., & Linster, H. W. (2008). Die deutschsprachige Version des Working Alliance Inventory - short revised (WAI-SR) - Ein schulenübergreifendes, ökonomisches und empirisch validiertes Instrument zur Erfassung der therapeutischen Allianz. *Klinische Diagnostik und Evaluation*, 1(3), 343-358.
- Wykes, T., Haro, J. M., Belli, S. R., Obradors-Tarragó, C., Arango, C., Ayuso-Mateos, J. L., ... & Elfeddali, I. (2015). Mental health research priorities for Europe. *The Lancet Psychiatry*, 2(11), 1036-1042.
- Yalom, I. D., & Leszcz, M. (2005). *The theory and practice of group psychotherapy* (5th Edition). New York: Basic Books.
- Zwerenz, R., Becker, J., Knickenberg, R. J., Siepmann, M., Hagen, K., & Beutel, M. E. (2017). Online self-help as an add-on to inpatient psychotherapy: efficacy of a new blended treatment approach. *Psychotherapy and psychosomatics*, 86(6), 341-350.