

Psychotherapy via the Internet as a Novel Tool for Clinical Use

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ABSTRACT

An increasing number of patients with prolonged waiting times or difficulties to get admittance to the health system has enforced the number of internet-based psychotherapy treatments in many countries. There is a wide range of solutions ranging from self-help to guided or therapist-delivered versions. Advantages and disadvantages of the different treatment approaches will be highlighted. Completion rates and effects of different e-health treatments will be compared with face to face treatments. Additionally different quality parameters of internet-based psychotherapy will be focused.

Keywords: Internet based Psychotherapy, Self help, guided and Therapist delivered treatment, Primary Care

HISTORY OF ONLINE-PSYCHOTHERAPY

Psychotherapy via the internet is not an entirely new subject. One of the first sessions of psychotherapy via the internet went online in 1986 for students of the Cornell University in Ithaca, New York. This online-help which was supplied by the program "Ask Uncle Esra" still exists. In Germany the crisis telephone-line as a pastoral advice service offers online services since 1995 until today. In comparison Steve Jobs introduced the first iPhone 2G just 10 years ago (on the 9th January 2007).

Medical subjects and health belong to the main topics of internet-searches. About 65% of users look for special diseases, 50% for nutrition or diets, 40% for medicines or drugs and 12% for solutions of special sexual problems. 23% of the searches deal with psychological or psychiatric problems [1].

PSYCHOTHERAPY & CONSULTATION VIA INTERNET TODAY: A VARIETY OF OPTIONS

- Internet as a platform of information
- Psychological consultation via internet asynchronously by e-mail or synchronically by „skype“-chats (single client or groupchats)
- Selfhelp treatment (also minimal-contact treatments)
- (Therapist delivered) internet-based psychotherapy (also as „blended therapy“)
- Internet-offers for further treatment of former inpatients after dismissal (often in group-settings)

Fig. 1 Options for Online-Psychotherapy and Consultation

There is a great variety of different services for consultation and internet based psychotherapy [2, 3]. For example the internet can be used as a plain information platform. Psychological consultation via internet may be achieved asynchronously by e-mail or synchronically by "skype"-chats. Groupchats can be differed from single client-chats. On the other hand self-help treatment programs or minimal contact treatments must be differed from therapist delivered psychotherapy. Additionally different forms of "blended therapy" as a combination of face-to-face and internet-based psychotherapy can be used [4, 5, 6].

EFFECTS OF ONLINE-PSYCHOTHERAPY

In several large meta-analyses it could be demonstrated that psychotherapy via the internet is an effective tool for patients with various psychiatric diseases [7, 8]. Cohen's d as a measure

of effectiveness (for the mean treatment effect) was shown to be > 0.5 for different psychiatric diseases and interventions. This measure is absolutely comparable with mean treatment effects of typical face to face treatments in outpatients.

The grade of effectiveness may be correlated with the type of disease. Recent meta-analyses of studies with depressed patients (including 19 studies altogether) showed an effectiveness of $d = 0.56$ [9, 10]. Other meta-analyses [11, 12] including 16 studies of anxiety patients (i.e. panic disease, social phobia or GAD) showed a mean effect of Cohen's $d = 0.96$ accompanied by significant ameliorations of symptoms. Recently Küster et al. (2016) [13] analysed a beneficial effect of Cohen's $d = 0.95$ in a meta-analysis of studies with PTSD-patients (8 studies were included). In a recent systematic review and meta-analysis of the effectiveness of internet-psychotherapy versus face to face psychotherapy no difference was found between face to face and internet-based psychotherapies [10].

net-step key-points



-  **Internet-psychotherapy with low number of face to face contacts**
-  **Diagnostic phase „face to face“ with experts (psychological psychotherapist + psychiatrist)**
-  **Modules of cognitive behavioral therapy**
-  **Project in cooperation with AOK (health insurance)**

Fig. 2 Keypoints of the online-therapy with “net-step” as an example for therapist delivered online-CBT

In our own clinic we use “net-step” as a therapist delivered online-CBT for outpatients with depression, panic disease or social phobia. We could show that our online-therapy was very effective in all of diseases mentioned above [14]. In patients with a depression we did not see a difference of effect sizes between patients who received an online therapy in comparison with patients who were treated face-to-face.

ONLINE-THERAPY AND DROP-OUTS

Internet-based psychotherapy without a direct contact between the patient and the therapist (self-guided programs) showed a smaller effectiveness and a higher drop-out rate [15]. In several studies a higher number of drop-outs occurred and less positive effects were achieved with self-help programs compared to therapist delivered psychotherapy [16, 17]. A comparison of patients without personal contacts to a therapist with patients having contacts only before therapy and patients with contacts only during therapy and patients having contacts before and during therapy showed higher effectiveness in therapies with increasing number of contacts (Cohen's $d = 0.21; 0.44; 0.58; 0.76$) [18, 19, 20].

There is a high amount of female users of internet-based psychotherapy (80 – 90%) [7, 21]. The mean age of the users is around 40 years [22]. Young men with a high affinity to the internet do not belong to the main users of IPT [21].

Therapeutic effects of internet based psychotherapy have been shown to be sustainable. Improvements after IPT held on for months after treatment [2]. In follow-up trials 1.5 years after the end of IPT-treatment Knaevelsrud and Maerker (2010) [23] showed constant improvements in patients with PTSD. Similar results were published by Wagner and Maerker in 2007 in patients with a complex grief or mourning reaction [21]. IPT used in these studies was based on modules of cognitive behavioral therapy.

THERAPEUTIC RELATION AND ONLINE-THERAPY

The therapeutic relationship via internet can be scored by use of the Working Alliance Inventory (invented by Horvath and Greenberg, 1989) [24]. Online-patients scored the therapeutic relationship as good as face to face patients after the 4th therapeutic session. However, there was a relatively higher drop out rate in the internet-group (17 %) compared to patients who received a face-to-face therapy [21]. On the other hand it has been shown that high scoring of the therapeutic relationship by patients is not a consistent outcome factor [25, 26].

CBT-Modules of “net-step” – an example for therapist delivered psychotherapy

1. Psychoeducation
2. List of positive activities / happiness & satisfaction
3. Balanced and equated thinking (self-test, diary of thoughts, reality check)
4. Aims and values
5. Self-image and self-perception (compass and positive diary)
6. Social competence (self-perception in social situations/surroundings)
7. Relapse prevention

Fig. 3 Modules of CBT used in online-therapies are quite similar to those used in traditional face-to-face therapies. This is an example for the online-treatment of depression with “net-step”.

ONLINE-PSYCHOTHERAPY PSYCHODYNAMIC ASPECTS

During the last decade a substantial increase in research and clinical implementations of internet-delivered, cognitive behavioral therapy can be noticed. Several studies on ICBT with the format of guided self-help were executed. Recently, the field has expanded to include other therapeutic orientations including psychodynamic psychotherapy. Currently, there are three randomized controlled trials that have tested the efficacy of psychodynamic psychotherapy delivered in this format. The latest published trial dealt with an affect-focused, psychodynamic psychotherapy delivered to a sample of participants with mixed depression and anxiety disorders. This method seems to be effective [27].

The effectiveness of a guided and unguided Acceptance and Commitment Therapy (ACT)-based online intervention has been investigated in patients with chronic pain disease [28]. The treatment was proved to be effective.

THE IMPORTANCE OF DIAGNOSIS

Using ICBT sufficient diagnostic investigation is of very high importance. Consideration or exclusion of additional diagnoses is necessary (e.g. personality

disorders, addiction). A simple “self-diagnosis” or a “quick” diagnosis are not sufficient. In our own experience we excluded patients with acute suicidality, psychotic thoughts and experience as well as dissociative experience from IPT. Comorbid drug or alcohol addiction may be treated with IPT, however, there are only few programs dealing with double diagnoses.

Advantages of online treatments include the options to contact patients in their own environment. It is convenient and immediate. Modalities may include videoconferences, e-mails or text messages or telephone contacts. Online-CBT is rather convenient for patients showing avoidance behavior especially in the beginning of treatment (e.g. patients with anxiety disorders or PTSD).

Internet-based psychotherapy is not only used in rural surroundings, it is also a very useful tool in urban areas. Immobilized or handicapped patients can get access to therapy. Patients with special needs concerning date and time of therapy are able to do psychotherapy.



Fig. 4 Example of an internet-based network embedded in an urban surrounding

NEW DEVELOPMENTS

New developments in the field of psychotherapy via the internet include the subjects of augmented reality, gamification or “serious games”, use of avatars or therapy in virtual spaces.

Special interests and developments in the fields of augmented reality (AR) and virtual reality (VR) by the entertainment industry has also led to moderate/low-cost virtual reality systems for special

use in psychotherapy. VR as a psychotherapeutic tool has been especially used for the treatment of phobias [29]. In forensic clinics VR can be used for special exposure and training without any risk for accompanying or present persons.

Another option to facilitate online-communication between clients/patients and therapists is the use of avatars. Five key applications for the use of avatars have been identified [30] :

- Formation of online peer support communities
- Replication of traditional models of psychotherapy by using avatars as a vehicle to communicate within a wholly virtual environment
- Using avatar technology to facilitate or augment face-to-face treatment
- Avatars as part of serious games
- Communication with an autonomous virtual therapist

Avatars seem to facilitate the development of an intense virtual therapeutic alliance by reduction of communication barriers. Due to anonymity they promote treatment seeking behavior. They also promote expression and exploration of the client's identity and they enable therapists to control and manipulate treatment stimuli [30].

The third option is the use of serious games (SG). The aim in a serious game is a behavioral change by the supply of information and education or training parallel to entertainment as a strong motivational factor [31, 32]. This kind of new media application can be used for the treatment of various psychiatric diseases.

There are several reasons for beneficial usage of serious games. Serious games extend the reach of online programs to those who might not use them otherwise. The engagement of patients is improved by game-based and by motivational dynamic effects. By use of varied mechanisms including engagement factors, therapeutic processes and gamification features serious games have a considerable potential to increase the impact of online interventions for mental health [33].

QUALITY CRITERIA

The development of quality criteria for the different online CBT programs seems to be of great importance. Some proposals for certification and quality criteria for online therapies are published [34].

Quality criteria include the following aspects:

- Evidence based effectiveness of treatment
- Security of treatment (tolerable side effects)
- Correct indication of treatment
- Data security
- Economic aspects
- Integration in customary care
- Cost regulations

The effectiveness of treatment should have been proven by at least two independent studies. The indication of treatment should be transparent. The grade of disease severity suitable for the intervention should be defined. The specificity of the treatment has to be determined (transdiagnostic vs single or dual diagnosis). Possible side effects of the treatment have to be documented as well as the duration and the intensity of treatment. How does the system react in emergencies?

The drop-out and completion rates have to be analysed as well as user satisfaction. The costs of the treatment should be transparent for the user (and the health insurance).

Are the costs of treatment covered by a health insurance? The liability claim has to be clarified. Who is liable in the case of harm to the patient: the developer of the program, the therapist or both?

Data security should be as high as possible by using encrypted lines and ports with a certified computer system. The time span of data storage until deletion should be defined and the user should have the allowance to ask for an early deletion of his data.

CONCLUSIONS

Internet based psychotherapy is an excellent additional tool for a wide range of psychiatric treatment methods. However, it is in no way a full replacement of face to face therapy.

“Net-step” as a therapist delivered CBT-internet-psychotherapy may be seen as an example to be an effective tool for the treatment of depression, panic disease and social phobia also in severely ill patients. It is a blended method combining advantages of a solitary online-psychotherapy with beneficial effects of face to face therapy.

Online-CBT is a method supplying a high grade of flexibility concerning time and location of the therapy. Our patients also reported that they felt less „stigma” using internet-CBT rather than going to a psychotherapist. Feedback from the patients also included that they were especially satisfied with the option to use material of the treatment even after they finished the modules. The basic satisfaction of our patients with the treatment was high as 87 % would use net-step again and would recommend the online treatment to others.

Another advantage of online-CBT is the opportunity of collegial intervision during treatment. We also used well trained supervisors for additional supervision in fixed intervals during online-treatment.

Early treatment with online-CBT may avoid the risk of exacerbation of patients symptoms.

Another advantage of online-CBT is the easy documentation of treatment because of the written contents of the program.

Pros for internet - psychotherapy

- flexibility with regard to time of therapy
- flexibility with regard to place of therapy.
- good reachability
- no „stigma“ of going to a psychotherapist
- less costs of therapy
- early intervention and less waiting time

Fig. 5 The main “Pros” of internet based psychotherapy

However, there are also some disadvantages using online-CBT. The use of fixed modules implicates limited options in cases of crisis interventions. It is

also difficult to treat patients with a double diagnosis. One of the main disadvantages of ICBT is the lack of gestures, mimic, verbal communication, other behavioural signs and especially emotionality during therapy. On the other hand we found that our patients were very open to address difficult subjects during treatment in a written form.

Cons of Internet - psychotherapy

- limited options for crisis intervention
- no additional (non)verbal or behavioral signals during session
- reduced emotionality in sessions
- difficulties in safe data protection using the internet

Fig. 6 The main “Cons” of internet based psychotherapy

Online CBT has been shown to have long-term effects at least over 5 years [35]. If online-CBT has enduring and long-term effects it is very likely to be a very cost-effective treatment. We did not gather any economic data in our trial. In the literature it has already been shown that online-CBT has lower costs of treatment compared with face to face group therapy [8, 36].

For the future combination of online-CBT and pharmacological treatment may be regarded as an effective tool [37].

Our results suggest that therapist delivered online therapy may be a very useful tool for clinical patients with various psychiatric diseases.

REFERENCES

- [1] Stretcher, V., "Internet methods for delivering behavioral and health-related interventions (eHealth)" **Annu. Rev. Clin. Psychol.** 2007; (3): 53-76. doi:10.1146/annurev.clinpsy.3.022806.0911428.
- [2] Barak, A., Hen, L., Boniel-Nissim, M. and Shapira, N.A., „A comprehensive review and a meta-analysis of the effectiveness of internet-based psychotherapeutic interventions”, **Journal of Technology in Human Services** 2008; Jul 03; 26(2-4):109-160.
- [3] Knaevelsrud, C., Brand, J., Lange, A., Ruwaard, J. and Wagner, B., „Web-Based Psychotherapy for Posttraumatic Stress Disorder in War-Traumatized Arab Patients: Randomized Controlled Trial”, **J. Med. Internet Res** 2015/ vol. 17/ iss. 3/ e71. doi: 10.2196/jmir.3582.
- [4] Warmerdam, L., van Straten, A., Twisk, J., Riper, H., Cuijpers, P., „Internet-Based Treatment for Adults with Depressive Symptoms: Randomized Controlled Trial”, **J. Med. Internet Res.** 2008/ vol.10 /iss 4 /e44. doi: 10.2196/jmir.1094.
- [5] Klein, J. P., Berger, T., Schröder, J., Späth, Ch., Meyer, B., Caspar, F., Lutz, W., Arndt, A., Greiner, W., Gräfe, V., Hautzinger, M., Fuhr, K., Rose, R., Nolte, S., Löwe, B., Andersson, G., Vettorazzi, E., Moritz, St., Hohagen, F., „Effects of a Psychological Internet Intervention in the Treatment of Mild to Moderate Depressive Symptoms: Results of the EVIDENT Study, a Randomized Controlled Trial”, **Psychother. Psychosom.** 2016; 85; 218-228, doi: 1159/000445355.
- [6] Baumeister, H., Reichler, L., Munzinger, M., Lin J., „The impact of guidance on Internet-based mental health interventions - a systematic review”, **Internet Interventions**, 2014: 205-215.
- [7] Barak, A., Hen, L., Boniel-Nissim, M. and Shapira, N.A., „A comprehensive review and a meta-analysis of the effectiveness of internet-based psychotherapeutic interventions”, **Journal of Technology in Human Services** 2008; Jul 03; 26(2-4):109-160.
- [8] Warmerdam, L., Smit, F., van Straten, A., Riper, H. and Cuijpers, P., „Cost-Utility and Cost-Effectiveness of Internet-Based Treatment for Adults With Depressive Symptoms: Randomized Trial”, **J. Med. Internet Res.** 2010; 12(5):e53, doi: 10.2196/jmir.1436.
- [9] Richards, D. and Richardson, T. “Computer-based psychological treatments for depression: a systematic review and meta-analysis”, **Clin. Psychol. Reviews** 2012; 32 (4): 329-342. doi: 10.1016/j.cpr.2012.02.0004.
- [10] Andersson, G., Cuijpers, P., Carlbring, P., Riper, H. and Hedman, E., “Guided internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: a systematic review and meta-analysis”, **World Psychiatry** 2014; 13 (3): 288-295. doi: 10.1002/wps.20151.
- [11] Andrews, G. and Titov, N., “Is internet treatment for depression and anxiety disorders ready for prime time?”, **Med. J. Aust.** 2010; 192 (11 Suppl.): S45.
- [12] Olthuis, J.V., Watt, M.C., Bailey, K. and Stewart, S.H., “Therapist-supported internet cognitive behavioural therapy for anxiety disorders in adults”, **Cochrane Database of Systematic Reviews** 2015; Issue 3 Art. No. CD011565. doi: 10.1002/14651858.CD011565.
- [13] Küster, A., Niemeyer, H. and Knaevelsrud, C., “Internet-based interventions for posttraumatic stress: A meta-analysis of randomized controlled trials”, **Clin. Psychol. Reviews** 2016; 43: 1-16. doi: 10.1016/j.cpr.2015.11.004.
- [14] Sprick, U. and Köhne, M., “Internet psychotherapy with “net-step” – a therapist delivered tool for the treatment of depression and anxiety disorders in primary care patients tested in a pilot RCT”, **Proceedings of the International Multi-Conference on Society, Cybernetics and Informatics, July, 8th -11th. 2017, Orlando, Florida, USA, pp. 18 – 23.**
- [15] Titov, N., “Internet-delivered psychotherapy for depression in adults”, **Curr. Opin. Psychiatry** 2011; 24, 18 – 23. doi: 10.1097/ycp.0b013e32833ed18f.
- [16] Spek, V., Cuijpers, P., Nyklicek, I., Riper, H., Keyzer, J. and Pop, V., “Internet-based cognitive behavior therapy for symptoms of depression and anxiety: a meta-analysis”, **Psychol. Med.** 2007; 37: 319 – 328. doi: 10.1017/s0033291706008944.

- [17] Cuijpers, P., Marks, I.M., van Straten, A., Cavanagh, K., Gega, L. and Andersson, G., "Computer – aided psychotherapy for anxiety disorders: a meta-analytic review", **Cognitive Behaviour Therapy** 2009; 38 (2), 66 – 82.
- [18] Johansson, R. and Andersson, G., "Internet-based psychological treatments for depression". **Expert. Rev. Neurother.** 2012; 12 (7): 861 – 869. doi: 10.1586/ern.12.63.
- [19] Zarski, A.C., Lehr, D., Berking, M., Riper, H., Cuijpers, P. and Ebert, D. D., "Adherence to internet-based mobile-supported stress management: a pooled analysis of individual participant data from three randomized controlled trials", **Journal of Medical Internet Research** 2016; 18 (6): e 146. doi: 10.2196/jmir.4493.
- [20] Baumeister, H., Reichler, L., Munzinger, M., Lin J., „The impact of guidance on Internet-based mental health interventions- a systematic review.” **Internet Interventions** 2014: 205-215.
- [21] Knaevelsrud, C. and Maercker, A., „Internet-based treatment for PTSD reduces distress and facilitates the development of a strong therapeutic alliance: a randomized controlled clinical trial”. **BMC Psychiatry** 2007; 7:13.
- [22] Vallury, K. D., Jones, M., Oosterbroek, C., „Computerized Cognitive Behavior Therapy for Anxiety and Depression in Rural Areas: A Systematic Review”, **J. med. Internet Res.** 2015/ vol.17/ iss. 67e 139. doi: 10.2196/jmir.4145.
- [23] Knaevelsrud, C. and Maercker, H., "Long-term effects of an internet-based treatment for posttraumatic stress", **Cogn. Behav. Ther.** 2010; 39 (1): 72 – 77. doi: 10.1080 / 16506070902999935.
- [24] Wagner, B. and Maercker, A., "A 1.5-year follow up of an internet-based intervention for complicated grief", **Journal Trauma Stress** 2007; 20 (4): 625 – 629. doi: 10.1002 / jts.20230.
- [24] Horvath, A. O. and Greenberg, L.S., "Development and validation of the Working Alliance Inventory", **Journal of Counseling Psychology** 1989; 36 (2), 223 – 233. doi: 10.1037/0022-0167.36.2.223.
- [25] Knaevelsrud, C. and Maercker, H., „Does the quality of the working alliance predict treatment outcome in online-psychotherapy for traumatized patients?”, **J. Med. Internet Res.** 2006; 8 (4): e31. doi: 10.2196/jmir.8.4.e31.
- [26] Sucala, M., Schnur, J. B., Constantino, M. J., Miller, S., Brackmann, E. H. and Montgomery, G. H., "The therapeutic relationship in e-therapy for mental health: a systematic review", **Journal of Medical Internet Research** 2012; 14 (4): e 110. doi: 10.2196/jmir.2084.
- [27] Johansson, R., Frederick, R. J. and Andersson, G., "Using the internet to provide psychodynamic psychotherapy", **J. Psychodynam. Psychiatry** 2013; 41 (4): 513 – 540. doi: 10.1521/pdps.2013.41.4.513.
- [28] Lin, J., Lüking, M., Ebert, D. D., Buhrmann, M., Andersson, G. and Baumeister, H., "Effectiveness and cost-effectiveness of a guided and unguided internet-based Acceptance and Commitment Therapy for chronic pain: study protocol for a three-armed randomized controlled trial", **J. Internet Interventions** 2015; 2 (1): 7 – 16. doi: 10.1016/j.invent.2014.11.005.
- [29] Wiederhold, M. D., "A review of virtual reality as a psychotherapeutic tool", **Journal Cyberpsychol. and Behavior** 2009; 1 (1): 45 – 52. doi: 10.1089/cpd.1998.1.45.
- [30] Rehm, I. C., Foenander, E., Wallace, K., Abott, J. A., Kyrios, M. and Thomas, N., "What role can avatars play in e-mental health interventions? Exploring new models of client-therapist interactions", **J. Front. Psychiatry** 2016; 7: 186. doi: 10.3389/fpsyt.2016.00186.
- [31] Eichenberg, C. and Schott, M., "Serious games for psychotherapy: a systematic review", **Games Health J.** 2017; 6 (3): 127 – 135. doi: 10.1089/q4h.2016.0068.
- [32] Eichenberg, C., Grabmeyer, G. and Green, N., "Acceptance of serious games in psychotherapy: an inquiry into the stance of therapists and patients", **Telemed J. E. Health** 2016; 22 (11): 945 – 951. doi: 10.1089/tmj.2016.0001.
- [33] Fleming, T. M., Stasiak, K., Hermansson,-Webb, E., Merry, S. N., Cheek, C., Lucassen, M., Lau, H. M., Pollmuller, B. and Hetrick, S., "Serious games and gamification for mental health: current status and promising directions", **J. Front. Psychiatry** 2017; 10 (7): 215. doi: 10.3389/fpsy.2016.00215.
- [34] Klein, P. P., Gerlinger, G., Knaevelsrud, C., Bohus, M., Meisenzahl, E., Kersting, A., Röhr, S., Riedel-Heller, S. G., Sprick, U., Dirmaier, J., Härter, M., Hegerl, U., Hohagen, F. and Hauth, I., "Internet-based interventions in the treatment of psychiatric diseases", **Nervenarzt** 2016; 87 (11): 1186 – 1193. doi: 10.1007/s00115-016-0217-7.

- [35] Hedman, E., Furmark, T., Carlbring, P., Ljótsson, B., Rück, C., Lindefors, N., Andersson, G., „A5- Year Follow-up of Internet-Based Cognitive Behavior Therapy for Social Anxiety Disorder”, **J. med Internet Res.** 2011;13(2):e39, doi: 10.2196/jmir.1776.
- [36] Titov, N., Andrews, G. Johnston, L., Schwencke, G., Choi, I., “Shyness program: longer term benefits, cost- effectiveness and acceptability.” **Australian New Zealand Journal of Psychiatry** 2009, Jan; 43 (1):36-44.
- [37] Andersson G. and Titov, N., „Advantages and limitations of Internet-based interventions for common mental disorders”, **World Psychiatry** 2014, Feb.; 13(1) 4-11, doi: 10.1002/wps.20083.